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THE
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The Journal of The Minnesota State Medical Association
and Official Organ of the
South Dakota State Medical Association

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1442

SMALLPOX AND CHICKENPOX

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Ten thousand cases of mild smallpox a year in Minnesota, with hundreds of wrong diagnoses (lay and even professional) annually, are excuse enough for the present article. The spread of the disease depends in part on wrong diagnosis; in part on concealment of cases; in part on non-report of known or suspected cases; but chiefly on non-vaccination.

There are about 2,000 practising physicians in Minnesota; hence each should see on the average five cases annually. As a matter of fact, many mild cases are seen by physicians only when a severe case calls for a general "round up," while many are never seen by physicians at all.

Chickenpox also is abundant, but again few of the cases are seen by physicians. Expert differentiation of these two diseases is therefore the exception rather than the rule.

Dr. J. M. Armstrong, late Assistant Commissioner of Health of St. Paul, has pointed out that the occasional failure to distinguish between mild smallpox and chickenpox is due less to lack of information concerning smallpox than to unfamiliarity with, or disregard of, chickenpox.

No physician who has the chance to see smallpox *or* chickenpox should fail to study the lesions minutely in correlation with the age of the lesions, especially during the acute stages.

Smallpox of the now-prevailing type is regarded as a very trivial disease, because its physical injuriousness is far less than that of whooping-cough or measles; but from the standpoint of the future, its importance is enormous. Its existence means a large contempt for the disease, coupled with much disregard of vaccination. An immense proportion of school-children are unvaccinated. With the younger generation thus unprotected, the majority of the population a few years hence will be unprotected, unless they have smallpox meantime.

The following figures cry aloud for themselves. They need no comment.

PAST EXPERIENCE OF PRAGUE (SEVERE TYPE OF SMALLPOX)—TWENTY-ONE YEARS EXPERIENCE*

Unvaccinated persons, 90,130.
Cases in unvaccinated persons, 7,462.
Deaths in unvaccinated, 2,224.
Vaccinated persons, 3,005,578.
Cases in vaccinated persons, 8,178.
Deaths in vaccinated, 423.

Each 10,000 *vaccinated* persons yielded *27 cases* and *1.4 deaths.*

Each 10,000 *unvaccinated* persons yielded *830 cases* and *247 deaths.*

The *unvaccinated yielded, in proportion, 30 times as many cases* and *nearly 200 times as many deaths* as did the *vaccinated.*

PAST EXPERIENCE IN MONTREAL (SEVERE TYPE OF SMALLPOX)

Montreal, like Minnesota, having many unvaccinated people, was free of severe smallpox from 1875 to 1885. In 1885 a Pullman-car porter, sick with the severe type of smallpox, entered the city. In nine months over 3,000 deaths occurred, of which 86 per cent (over 2,500 cases) were children under ten years of age. The population of Montreal was 168,000. In proportion, Minnesota (population about 2,000,000) would lose by death, if invaded by the severe type, *30,000 children under 10 years of age.**

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*Welch and Schamberg: "Acute Contagious Diseases."

CLINICAL TYPES OF SMALLPOX (VARIOLA)

Smallpox (variola) is one disease, whatever its degree of severity. According to circumstances (the individual resistance of the particular patient, the individual virulence of the particular germ, and the size, probably also the frequency, of the dose) smallpox may affect different patients with different degrees of severity. Thus arise certain clinical types, with many degrees in each:

(a) Discrete smallpox, i.e., with the individual lesions well separated.

(b) Confluent smallpox, i.e., having the lesions fused together.

Most cases of smallpox, other than those of the extremely mild type at present prevalent, show both discrete and confluent lesions. These terms are therefore relative, a discrete case usually showing some confluence and a confluent case usually showing some discrete lesions.

(c) Hemorrhagic smallpox, i.e., accompanied by hemorrhages into the skin.

Minor capillary hemorrhages are not infrequent in the severe types of smallpox and are usually unnoticed or disregarded. The term *hemorrhagic* is therefore also relative. The most striking form of hemorrhagic smallpox is that in which hemorrhages precede the eruption, death occurring promptly. Strictly speaking, these cases are *sine eruptione*, but only because the patient dies before the eruption has time to appear. The term *sine eruptione* is, in practice, restricted to cases in which the eruption fails to appear, *despite survival beyond the prodromal stage.*

(d) Varioloid.

Smallpox, modified as regards clinical symptoms by vaccination, is known as varioloid. Such modification occurs (a) when the absolute protection afforded by recent successful vaccination has partially run out, as it is likely to do after five to seven years from the date of vaccination; (b) when an unvaccinated person exposed to smallpox is vaccinated during the incubation period. If less than three days have elapsed since exposure, a successful "take" usually prevents an attack of smallpox entirely. If more than three but less than ten days have elapsed since exposure, a light attack (varioloid) is likely to supervene. If over ten days have elapsed, vaccination is unlikely to have any marked effect in modifying the subsequent attack.

The proper thing to do is to vaccinate all exposed unvaccinated persons without regard to the time which is alleged to have elapsed since exposure.

(e) Abortive smallpox.

A few persons are by nature wholly immune to smallpox. Some persons are by nature partially immune, sufficiently to prevent the regular course of symptoms, but not sufficiently to protect them absolutely. In such persons, a very light attack with atypical lesions, and quick recovery may occur. These cases are described as "abortive." Smallpox modified by artificial immunity (vaccination) is called *varioloid;* smallpox modified by natural immunity is called *abortive.*

(f) Smallpox *sine eruptione.*

This form is probably due to a somewhat greater degree of partial immunity than that which yields the abortive form. The systemic disturbances are similar to those of true smallpox, at least in the recognized cases, which are very rare.

The chances are that abortive and *sine eruptione* varieties of smallpox are really not uncommon in smallpox outbreaks, just as similar forms of scarlet fever, diphtheria, measles, typhoid fever, etc., accompanying outbreaks of the latter diseases, are not uncommon; but these forms are usually unrecognized and therefore considered rare.

(g) Mild smallpox.

This, the prevailing type at the present time in Minnesota, is as truly smallpox as are the types above described, and deserves equally a distinctive descriptive term. It presents difficulties in diagnosis only because of its mildness, not on account of any qualitative difference from the more typical strains. It is not varioloid, nor is it hemorrhagic, abortive, or *sine eruptione.* It is usually discrete, occasionally partially confluent.

Mild smallpox is true typical smallpox, but "scaled down" in severity, in number of lesions, and in duration. It does not "run to schedule" so closely as the more severe forms. The incubation period averages a day or two longer and is slightly more variable. The prodromal stage is often light, although also often severe, and is not as closely limited to two or at most three days as in the more severe forms. The lesions have the same relative distribution,* character and stages as the lesions of the severe type, but the duration of the different stages is apt to be shorter. Pustulation is generally not accompanied by marked secondary fever; and crusting, decrustation, scabbing, etc., are relatively rapid in progress.

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*Cases, and especially deaths, amongst vaccinated people, occur only in those whose vaccinations took place many years previous to exposure. Successful vaccination surely protects for 5 to 7 years. After that the immunity grows increasingly uncertain.

Too often the attempt is made to "size up" such a case on general principles and to regard it as not smallpox, merely because the symptoms are mild, the lesions few, and the course short. This policy throws all expert differentiation to the winds, abandons all exercise of professional observation, and adopts the lay attitude: "It is too mild for smallpox, therefore it is chickenpox." As well might we follow the slogan of thirty years ago with regard to diphtheria: "The cases that die are diphtheria; the others are not."

In earlier days there was, perhaps, some room for difference of opinion as to the true generic place of the mild smallpox, especially amongst those who had theretofore been familiar only with the severe types. Mild smallpox has now received the most careful study for at least ten years over nearly the whole of the civilized world. There is no longer any excuse for regarding the mildest smallpox as anything but true smallpox, the differences being clearly established as of degree, not of kind. Since all the evidence, especially that it protects against smallpox, breeds true, and at times produces the severe type, is at hand, the most skeptical, if hesitating on scientific grounds only, must yield now to the demonstration.

DIFFERENTIAL DIAGNOSIS OF SMALLPOX

The most common differentiation called for is that between smallpox and chickenpox. As German measles is to measles proper, and Duke's disease to scarlet fever, so is chickenpox to smallpox,—analogous to it, but wholly distinct from it. Neither protects against the other; neither ever produces the other; each breeds true. Clinically, the distinctions between mild cases of these diseases and their corresponding imitators are often somewhat difficult. In practice the most important points to consider in differentiating smallpox and chickenpox are—

1. History of association with frank cases within the incubation period.
2. *Definite history* of previous chickenpox, smallpox, vaccination.
3. Date on which lesions appeared.
4. Location of first lesions noted.
5. Quantitative distribution of lesions in relation to covered and uncovered portions of the body.
6. *Character of individual lesions in correlation with the number of days they have been in existence.*

In aproaching the diagnosis of a doubtful case, the derivation of the present case from, or its ability to give rise to, a frank case, is extremely important, but such evidence may not be available. It also happens at times that the history concerning vaccination, the existence or character of prodromes or even the exact date of eruption is indefinite or unobtainable. In dealing with mild smallpox, the history of a previous attack of chickenpox or smallpox is often not very conclusive, since the previous attack, being subject to similar difficulties in diagnosis, may have been itself wrongly named at the time when it existed. Hence the distribution and especially the character of the lesions themselves become of the greatest importance.

DIFFERENTIATION OF LESIONS

On general survey the smallpox patient shows *round* lesions only,* crenated, *not* crenated at margins, *uniform* in size, and *unbroken*. They are *chiefly* on the face and limbs.

The chickenpox patient shows *round and oval* lesions, usually crenated at margins, *varying widely* in size, and almost always more or less *broken* or disfigured; they are *chiefly* on the *body*.

On close examination the smallpox lesion is found relatively small, round and, in the papular, vesicular, and pustular stages, *very firm*. It is *deep-seated;* and the vesicles and pustules are thick-walled and rupture only with the greatest difficulty. Very firm pressure and hard rubbing with the ball of the finger scarcely impress the smallpox papule, vesicle, or pustule at all.**

Naturally this differential point can be made use of only if intact vesicles can be found. This is seldom true in chickenpox if the eruption is of more than three or four days' standing, because the chickenpox vesicles are so delicate that they are ruptured by the friction of clothing or other accidents, as well as by scratching. Hence many times few or no distended vesicles can be found in chickenpox, the lesions being either completely decapitated, showing merely small raw or crusted pits on the vertex of low round or oval elevations, or the same pits, *overlain by the macerated opaque white, shrivelled, wrinkled, empty, easily brushed off epithelial rag* representing the remnants of the previously distended and then, therefore, thin and transparent walls of the vesicle, now ruptured. The very fact that plentiful unruptured vesicles present themselves for examination is itself presumptive of smallpox, although this condition may be found in chickenpox at times in the first day or two of the eruption. The presence of plentiful broken-down vesicles is itself strongly presumptive of chickenpox.

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*Provided there are lesions enough to furnish any basis for determining relative distribution.

*The shapes of confluent lesions depend of course upon the number and position of the round lesions forming the margins of the confluent area.

**It is possible to break the smallpox vesicle or pustule with the fingernail by firmly digging into the margin of the elevation. When this is done, the thick epithelial wall of the vesicle comes away, maintaining its shape, like a top of a neatly cut egg. The chickenpox vesicle, whatever its size, is like a half-balloon, thin-walled, tense, with clear contents—pearly—and is quickly broken down at the lightest touch, the collapsed wall being soft, flimsy, shapeless,—a mere rag.

The reddened areolæ surrounding the lesions of the two diseases are often similar, but the smallpox areola (until secondary infection late in the disease may alter conditions) is generally narrow, and, since it surrounds a round lesion, is itself circular. The chickenpox areola is usually wider, the depth of color diminishes more gradually towards a more diffuse edge, and when the lesions are oval the areola corresponding to them is oval also. Finally the chickenpox areola frequently, although by no means invariably, shows irregular flaming offshoots, which give the whole the appearance of a bright-red ragged star.

Some prevalent misconceptions concerning differential diagnosis are—

1. That chickenpox occurs only in children. It is true that the vast majority of chickenpox cases occur at or before twelve years of age, but cases in older children and even in adults are by no means uncommon.

2. That smallpox does not invade the scalp. It is true that chickenpox usually invades the scalp while smallpox sometimes does not, but the point is by no means final.

3. That smallpox alone invades the palms and soles. It is true that smallpox almost always invades the palms or soles, or both, but chickenpox not infrequently shows one or more palmar or plantar lesions.

4. That smallpox lesions are umbilicated, while chickenpox lesions are not.

This statement might be made almost without reservation, if confined strictly to the *vesicles* of the two diseases. But the umbilication of the smallpox vesicle disappears on pustulation (probably by liquefaction of the restraining bands which produce the "dimple"), while the subsequent drying out of the pustule reproduces a pseudo-umbilication in the late pustular stage. The chickenpox vesicle, being swept off or broken, leaves the slightly pitted summit of the papular base of the vesicle exposed. On drying, and especially after crusting, the lesion thus evolved often presents a certain dimple, sometimes mistaken for umbilication. This "umbilication" is wholly different in stage, cause, and structural features from the true umbilication of the smallpox *vesicle*, and should never be confused with it. It is not even analogous to the secondary umbilication of smallpox, for in the latter the epithelium covering the pustule is still intact, although dry.[*]

5. The smallpox lesion is often considered too be frankly multilocular, and the chickenpox lesion unilocular. While this teaching is true, histologically, in a general way, of the *vesicles*, and the *vesicles only*, the respective structures cannot be differentiated by such a crude test as pricking the vesicle with a pin. The chickenpox vesicle is broken readily, and the prick of a pin is more than likely wholly to disrupt it. The smallpox vesicle is exceedingly tough and the evacuation of one of its chambers is unlikely to permit observable collapse of the particular segment evacuated. Indeed, this test is somewhat analogous to "differentiating" toy balloons from grape-fruits by sticking knives into them, first, because the differentiation is clear on other grounds without the knife test, and, second, because the toy balloon is destroyed by such test, its "multilocularity" or "unilocularity" being thus placed beyond demonstration. *Any case where the conditions are such that this "test" could conceivably be employed as a definite and sensible means of differentiating vesicles not otherwise distinguishable from smallpox,—is smallpox.* The true distinction is this,—the chickenpox vesicle is *destroyed* at a *touch;* the smallpox vesicle is hardly to be ruptured under any circumstances without[**] considerable violence.

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[*] It is stated by J. N. Armstrong that smallpox papules, under moderate magnification show umbilication also.

[**] Occasionally chickenpox vesicles of the forehead and especially of the palms or soles, may be found more deeply seated or having over them a tougher epidermal covering than usual. The only lesson of this fact is, that the lesions of the face, palms, and soles should not be used for the testing of this particular differential point.

The not unnatural tendency of all clinical diagnosticians is to draw the diagnostic lines too closely and to demand a very typical clinical picture before making a decision. This is particularly true in smallpox, scarlet fever, measles, etc., where the laboratory tests are not available. (Curiously enough, the tendency has been the other way in making diagnosis of poliomyelitis.)

A most important revolution made by laboratory work in clinical diagnosis depends on the laboratory demonstration that, in those infectious diseases where the germ is known, the clinically typical case is usually accompanied, especially in epidemics, by clinically atypical cases of the same disease showing all degrees of severity and therefore all degrees of difficulty in clinical diagnosis.

Obvious analogy, confirmed by epidemiological research, shows that similar facts must be, and are, true of those infectious diseases whose germs are not known. Hence the conscientious searcher for infectious cases must widen his diagnostic horizon. He must be prepared to recognize not only cases presenting every classical feature described in literature, but also the atypical cases, and at times to base his diagnosis rather on the previous history and associations of the patient than on the presentation of text-book symptoms. When in doubt, isolate the patient, and examine him again, later, when the disease is more developed.

DIFFERENTIAL DIAGNOSIS: SEVERE SMALLPOX, MILD SMALLPOX, AND CHICKENPOX

The case which has smallpox will show—

1. *An incubation period* (i.e., from exposure to earliest symptoms—not to eruption) *of practically* 12 *days.* (In mild smallpox 14 days.) The incubation period can be determined accurately only in cases where known exposure occurs on a given date, with no exposure before or after, and also when the date of earliest symptoms resulting from such exposure is definitely fixed.

2. *No definite history of previous attack of smallpox.* (When mild smallpox has prevailed for years, often confused with chickenpox, and *vice versa*, this history is of little account, especially when the previous diagnosis was made, as often happens, by the laity.) Examination for pits should be made. Round pits indicate smallpox; oval pits, clean cut, indicate chickenpox. Confluent smallpox may yield pits of irregular shape. In mild smallpox, and in chickenpox, pits of any kind may be few and small.

3. *No history* of *successful vaccination within five to seven years.* Careful examination for scars should be made.

4. *Prodromes, lasting two or, at most, three days,* headache, backache, fever, epigastric pain, chills, sudden onset. Mild smallpox often presents very indefinite and trivial prodromes. When definite, a history of three or four days or more of prodromes may be offered. (See 5.)

5. *First signs of eruption on 3d or 4th day of attack.* In mild smallpox the earlier eruption, when sparse, is often unnoticed for a day or so, thus prolonging the *observed* interval between onset and eruption.

6. *Eruption beginning on face and wrists.* In mild smallpox, the lesions are sometimes so few that the earliest ones are overlooked until the full crop has appeared.

7. *Eruption most profuse on skin not covered by clothing.* In mild smallpox, with very sparse lesions, there may be too few lesions to permit any real comparison of relative abundance at different points.

8. *Palms and soles often attacked.* In mild smallpox, one or two lesions in one palm or one sole may be all that can be found in these locations.

9. *Eruption develops in one crop, the lesions appearing steadily for 24 to 48 hours; the face lesions usually further developed than the body lesions.*

In mild smallpox, aborted lesions, i.e., not following out the regular stages, are sometimes found.

10. *Lesions round at all stages. Margins not crenated. All those of the same stage of development are usually of the same size.* The stages are—

A. "Flea-bite" macules, each lasting 24 hours; exist during the 1st day of eruption (3d day of disease). (Note.—With the appearance of the eruption, the systemic symptoms improve; but with very mild prodromes, this improvement can hardly be observed.)

B. *"Shotty" papules,* each lasting 24 hours, exist during the 2d day of the eruption (4th day of disease).

C. *Umbilicated "shotty" vesicles,* each lasting 24 to 72 hours, exist during the 3d to 5th day of eruption (5th to 7th day of disease).

D. *Firm opaque pustules,* each lasting 4-6 days, exist during the 6th to 12th day of eruption (8th to 14th day of disease). (Note.—With pustulation, the secondary fever begins.) In mild smallpox pustulation is usually very innocuous and little or no secondary fever is observed.

E. *Firm crusts* appearing about the 13th day of eruption (15th day of disease). (Secondary or pseudo-umbilication, due to drying, may be found about this time.)

F. *Dense scabs and deep-seated, tenacious "mahogany" plaques*, developing as drying out continues. They are variable in duration, lasting many days or weeks in severe neglected cases. In mild smallpox the absence of severe pustulation often obviates the formation of the deep-seated tenacious plaques. Those formed are rather superficial and are removable without great difficulty. (Note.—Because of some lesions developing earlier than others it is possible to have during the first 24 to 48 hours of the eruption, macules and papules and even vesicles together, during the next 24 to 48 hours papules, vesicles, and pustules; thereafter, however, vesicles and pustules alone, later followed by pustules and crusts, will be found; finally, crusts, scabs, and plaques, leaving pits as they disappear. In mild smallpox, aborted lesions sometimes add to the variety of conditions presented.)

11. *Pitting*, especially following marked pustulation, is deep and permanent; the pits red for months, then white. Unless extended by impetigo, or fused by confluence, the pits are round. Mild smallpox yields few and small pits only, as a rule.

THE CASE WHICH HAS CHICKENPOX WILL SHOW

1. *Incubation variable*, but from two weeks to seventeen days as a rule. (See smallpox 1.)

2. *No definite history of previous attack of chickenpox*. (See smallpox 2.)

3. A history of successful vaccination within five to seven years, or a definite history of previous smallpox, practically eliminates smallpox and therefore admits a chickenpox diagnosis; absence of history of one or other or both of these does not, of course, *eliminate* chickenpox.

4. *No history of prodromes usually*; if any, chiefly in adults and for not over 12 hours preceding eruption.

5. *First signs of eruption in first 24 hours of illness*, i.e., systemic disturbance usually synchronous with or immediately preceding eruption.

6. *Eruption beginning on back, chest, or face.*

7. *Eruption most profuse on skin covered by clothing.*

8. *Palms and soles may sometimes show lesions*, less constantly and less abundantly than in smallpox, however.

9. *Eruption appearing in successive crops*, on successive or alternate days.

10. *Lesions round and oval*, with much variation in diameter, even in the same stages of development. Margins not crenated.

Each crop passes quickly through the following stages:

A. Macules, each lasting a few hours.

B. Soft, superficial papules, each lasting a few hours.

C. Clear, thin-walled, tense vesicles, each lasting a few hours. These are easily destroyed and leave then "cupped" or "pitted" elevations, raw, red, and weeping, but quickly crusted. When the vesicle is ruptured, without total removal of the cap, a white, opaque, shriveled rag of epithelium, lying more or less loosely over the pit, remains.

D. Crusts, lasting a shorter or longer time according to treatment, etc.

Each crop completes its cycle in 2 to 4 days.

In the first week macules, papules, vesicles, and crusts may be found together. Thereafter the earlier forms disappear, and in the second week crusts alone or in great predominance are found. (Note.—The older lesions are very often complicated by presence of impetigo.)

11. *The pits* are few and superficial, often oval. When extended by severe forms of the impetigo which so commonly affects chickenpox lesions, during and after the 2d week, the pits may be irregular in outline.

GENERAL OBSERVATIONS

In smallpox the worst systemic disturbance and suffering are often found during the prodromes, and improvement, if only temporary, follows closely on the appearance of the eruption. Severe prodromes may be followed by either mild or severe eruption; mild prodromes, usually by mild eruption. The extent of the eruption on the face is a fair index of the general severity of the attack.

In chickenpox the practical absence of prodromes means that the first appreciable systemic disturbance, if there be any at all, begins with the eruption and continues for a few days thereafter.

In smallpox, itching during the early stages of the eruption, is not usually a marked symptom; nor does scratching injure the lesions much, on account of their deep-seated and tough-walled character.

In chickenpox, itching is highly characteristic, and since the relatively superficial and thin-walled lesions are very fragile, they are easily destroyed not alone by scratching, but by every form of contact. This feature alone is of very strong diagnostic import.

In smallpox the thick walls of the pustule permit comparatively little evaporation; the pustule, in shrinking, shrinks into the skin, and a hard opaque, brown, very tenacious "scab" is formed.

In chickenpox the vesicle, if not wiped off or collapsed early, shrinks by evaporation to a brittle but still somewhat elevated cap, very easily broken off or dislodged.

GENERAL DIFFERENTIAL DIAGNOSIS OF SMALLPOX

(Modified from A. E. Thomas: "Public Health," Vol. XX)

During the invasive stage, and before the appearance of the prodromal rashes, the diagnosis must be made from—

1. Other infectious diseases having an acute onset, e.g., measles, scarlatina, typhus, influenza, etc. Diagnosis at this stage depends primarily upon (a) presence of an epidemic; (b) history of exposure within the appropriate incubation period.

In the case of the diseases indicated below, the following points should also be considered:

Scarlatina. With rash absent or "missed." Condition of tongue, cervical lymph-glands, tonsils, nose discharges, injection of soft palate (enanthem), circum-oral pallor, history of vomiting and sore throat. Backache, absent or slight.

Measles. Coryza, photophobia, lachrymation, Koplik's spots, backache absent or slight.

Typhoid Fever. Although this has not an acute onset, many cases when smallpox is rife are reported as smallpox. Attention should be paid to (a) gradual rise of temperature at onset; "step ascent" on chart; (b) early epistaxis or deafness, not common; (c) Widal reaction; (d) tympanites; (e) condition of tongue; spleen, stools.

Influenza. Here the diagnosis may be impossible until the time interval for the appearance of the rash has passed. The muscular soreness and prostration are both generally much more exalted in influenza than in smallpox. The history of exposure and the presence of an epidemic are of special importance here. The bacillus may sometime be isolated from the sputum.

Meningitis. The history, with the presence of a possible cause, e.g., suppuration of the middle ear or tuberculous focus in a lung, is important. The subsequent course, with the attending palsies, generally soon clears up the issue. Backache is uncommon.

Cerebrospinal Meningitis. Retraction of the head; rigidity of the neck muscles; Kernig's sign; possible presence of the bacillus in the nasal discharge or in the fluid obtained by lumbar puncture.

After the appearance of the rash the diagnosis has to be made from—

> In all stages, chickenpox, acne, syphilis, drug-eruptions, glanders, scabies, lupus, especially of the face.
>
> In the papular stage, prodromal rash of measles, erythema nodosum, lichen planus.
>
> In the vesicular and pustular stages, herpes, erythema iris, and erythema bullosum.
>
> In the pustular stage, impetigo and pustular scarlet fever.

OFFICIAL CONTROL OF SMALLPOX IN MINNESOTA

Much misunderstanding exists amongst the laity, the profession, and even the health officers of Minnesota on this point. It is commonly stated that "nothing is to be done for smallpox; there is no quarantine," etc., all of which is error.

Under the regulations, the chief steps to be taken are—

1. The patient is to be isolated in a suitable place, preferably with a vaccinated attendant.

2. All persons exposed to him on and after the date of earliest symptoms, at home, at work, especially school-children, are to be examined.

3. Of those exposed to the patient, all who can *prove* successful vaccination within seven years, or a previous attack of smallpox, may be dismissed. Those remaining must be vaccinated at once, or go into isolation for three weeks.

4. The premises where the smallpox patient is confined must bear a warning placard indicating that smallpox exists on the premises.

5. Persons vaccinated successfully within seven years, those who have had smallpox, and those who failing either, submit to immediate vaccination, may enter or leave the placarded premises without restrictions.

6. Persons not thus protected, may enter the premises, but must then stay there, unless they become vaccinated.

7. In epidemics, teachers and children not vaccinated and who have not had smallpox must be excluded from school for three weeks.

THE REMOVAL OF THE LENS IN ITS CAPSULE IN CATARACT CASES*

By H. A. Beaudoux, M. D.

ST. PAUL

There is perhaps not an operation in the whole field of surgery for which surgeons have sought with greater eagerness some definite method of technic than that for the removal of cataracts; and while we are getting nearer some definite and tangible decision in regard to certain steps, we are yet far from having a unanimous agreement as to a universal method of extraction The aim of the operation of course is the restoration of permanent vision, and, with that aim in view our efforts should be bent toward determining the best kind of operation to be performed in each case. That no one operation will do for all cataractous eyes, our past experience and clinical study confirm; however, since Major Smith, of Jullundar, India, published an account of his operations on thousands of cases, we are indebted at least to this English surgeon and his colleagues in that country for several great lessons, whether or not we fully agree with them that all cataractous lenses can or should be removed in their capsules, and to these I shall refer presently. We all have dreaded the loss of vitreous, which of course endangers vision and tends to effect retinal detachment, as well as infection, and in some cases a total loss of the eye. Major Smith, having discarded the well-known eye-speculum, giving preference to a lid-retractor for the upper lid, and the educated thumb and hand of an assistant for the lower lid, emphasizes also the fact that the patient need not be instructed to look downward to perform the iridectomy nor the delivery of the lens, but he does it practically under the upper lid. He has thus eliminated by following this technic two of the most serious causes for complications of the ordinary cataract operation. We are therefore entering upon a new era in the operation of cataracts, for I truly believe that the experience of these surgeons, who have performed several thousands of these operations in the past few years, will determine surely certain definite steps, such as the kind of incision which we should make, barring few exceptions, and this as you probably know has been considered for many years the most important step of the operation itself, because, as a great French surgeon once said, "the operation for cataract consists in the incision." If all the eyeballs were of the same size, if the tension were always the same, if the cornea measured from eleven to thirteen millimetres in its horizontal diameter, if the lens in the capsule always measured about nine millimetres, if the cataractous lens were always soft, and if the operator's skill were so standardized that he could mathematically place his section proportionately to the size of the cornea and the size of the lens, it would, indeed, be a simple operation, but these lines of difference and the different nationalities, the different facial anatomy, and the different temperaments are so at a variance that experience alone can teach one to meet the exigencies of each case as he proceeds, step by step, to the completion of a cataract operation.

It was the misfortune of the writer to meet, last December, with perhaps one of the most complicated cases of cataract for operation, every point considered. The case was that of a woman, 62 years old, of foreign birth and unable to understand the English language, with very small and most rigid lids, deep-set eyes, small cornea, not measuring over 8½ millimetres, and a lens which afterwards was found to measure 8¼ millimetres, and fluid vitreous. Compared with elastic lids, which could be easily separated from the cornea, and a cornea at least 2½ millimetres larger than the lens in diameter, this case offered no brilliant outlook for a speedy and uneventful operation. While these atypical conditions had been noticed in this woman before the operation, the lens could not be delivered, except with the use of instruments, although the incision had been made so as to place the puncture and counter-puncture through the horizontal diameter of the cornea and as far below the corneal-scleral junction as could be done with safety. In such cases you may imagine the impossibility of using a speculum without making undue pressure on the eyeball and its delicate contents, and the difficulty of keeping the lids apart, even with retractors. Considering, in addition, the other conditions which I have mentioned, it would be folly to expect to employ any special method or technic for the extraction of the lens in such an eye. The operator must meet the emergencies as they arise, step by step, and have a wide knowledge of the possible anomalies which may arise during the operation, and also have sufficient experience and coolness to cope with them.

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*Read at the 24th annual meeting of the North Dakota State Medical Association, Fargo, May 9 and 10, 1911.

The operation for cataract with extraction of the lens in its capsule, is by no means new to those who have had experience in this line of work and is not original with Major Smith or his colleagues in India, as all of us have, at some time, been surprised to see the lens appear in the wound as soon as the incision was completed, and have found the extraction exceedingly easy with a beautiful black pupil as a result.

Upon examination of the lens in this case it was found that the zonula had been ruptured and that the capsule accompanied the lens, but that this extraction can be performed in all cases, as Major Smith would have us believe, is not, at least at the present time, the international opinion of ophthalmologists.

The task therefore that confronts us is to devise an operation which will enable us to remove the lens in its capsule when, in the mind of the operator, it cannot be delivered safely according to the Indian method, as it has been called, and to recognize those where the operation is contra-indicated. To that end several detachers have been advocated, in order to rupture the zonula, thus preventing any undue pressure or traction on the contents of the eyeball and making the delivery of the lens as easily as in the ordinary operation, when we either cut the capsule with a cystotome or remove a piece of it with capsular forceps, and prevent, by such unnecessary manipulation, complications, such as cyclitis and other inflammatory reactions which are sure to follow any rough handling of the eye during the operation. As I have already stated, the incision is one of the most important steps in any operation for cataract, and by that I mean any operation for cataracts other than senile, concerning which I am speaking in this paper, for you must bear in mind, again, that all juvenile cataracts coming under the heads of the congenital, zonular, polar, or purely nucleo-cortical type, traumatic, diabetic cataracts, and others are not dealt with in this paper, nor the different methods of operating necessary to their safe and beneficial removal. By making a deep incision into the sclera—and by that I mean beyond the corneoscleral junction—and having punctured and counter-punctured as deeply as it can safely be done, finishing the incision with one sweep of the knife and coming out about two millimetres from the corneoscleral margin, you will have perhaps the most nearly ideal incision for an operation upon the capsule or for intracapsular removal of the lens. The cornea, as its name indicates, being quite hard and horny, lends support to the upper section of the wound and assists in estimating the amount of pressure which is made on it during the operative steps.

Following this, the next step in Major Smith's operation is to cause the iris to bulge by making pressure with one prong of the iris forceps upon the center of the cornea and grasping it as it comes out of the incision. He then performs his iridectomy in various degrees according to his estimation of the necessity for a large or small opening. The next step is the detachment of the lens capsule and the expulsion of the lens, which is done with a small tenotomy-hook and a spatula, the latter to be used to replace or support the vitreous if a bead of it protrudes either above or below the escaping lens. Sometimes the lens turns over and, as Smith calls it, is a "tumbler." The same care then must be exercised and pressure be made in the direction of the arrow (pointing to chart) or vitreous may escape. Some men who operate for this condition four or five times a year will tell you that the loss of vitreous is not dangerous, and that it is not important to take such great care to prevent its escape, for it is supposed to re-form, Whether it re-forms or not is not an assured thing although apparent normal tension may be restored. Further, assuming that it did re-form, its escape at the time of the delivery of the lens is in no small amount compared with its total bulk, and such an accident is courted by no one, so far as I know, for it favors such complications as detachment of the retina and collapse of the cornea, and necessitates keeping the patient in bed much longer than old people should be kept, for a certain number have developed hypostatic pneumonia, sometimes as early as the third day, and have died from this condition.

Most of Major Smith's artificial pupils appear a little high, and this has been attributed to the semiblunt hook with which he replaces the corners of the iris near its roots. A smaller and finer instrument has been much more useful in my hands. The toilet of the eye at Jullundar is short and oftentimes minimized to a certain extent. Some of his critics ascribe this as a cause for some of the bad after-results, as well as some other causes which are considered contra-indications to this operation. Major Smith and his colleagues are not without their mishaps and trials in this field of surgery. They have loss of vitreous, ruptures of the capsule during extraction, infections, and cases without much vision; and these old-time dreaded complications and results have caused his co-workers all over the world to pause and attempt to classify, if possible, the cases upon which it can be considered safe to operate according to the Indian method.

Reviewing, briefly, the growth and history of senile cataracts, since these are the ones we are dealing with in this paper and the most common form we meet in our practice, one finds that we meet with three forms: lenses which first show pathological changes in the cortex; second, cases where these changes occur in the nucleus; and, third, where they appear simultaneously both in the cortex and in the nucleus. What bearing this can have upon future operations we shall see.

A cataractous eye is at best a sick eye; and eyes, like men, vary in the amount of wear and tear produced by any pathological changes involving the body as a whole or one particular organ. If the lens is nourished through the lymph-circulation to the ciliary processes and the posterior surface of the iris, when the current to the lens passes through the canal of Petit and not from the vitreous, we can, to a great extent, estimate the degenerative process going on in the eye, and can account for the irregular changes in the lens. Assuming that the cortex is first involved in the process of maturing, this gradually cuts off the lymph-supply to the nucleus, which, in its turn, matures quickly. When the nucleus matures first, the cortex transparency is preserved for a long time, as its nutrition is maintained in a greater or lesser degree. But in the case where the cortex and the nucleus are both involved the process is much slower, as the lymph-currents are more evenly maintained. This last class of cases indicates a healthier state of things and greater power of resistance. This is the form of cataract we meet in Europe and in this country, and it suggests the reason why cataracts are harder to deal with in these countries than in India, especially in Southern India, where cataracts mature from seven to ten years earlier.

Much more could be said upon the pathology of the maturing process, but suffice it to say that the more active the process the greater the degeneration of the tissues, consequently the easier they can be torn apart and the more favorable will the capsular detachment be in these cases; hence the reason why this method has found its advocates in India where, as has already been said, the maturing process is speedy and of short duration.

It was my good fortune some two and a half years ago to be invited to meet Dr. W. J. Wanless, a medical missionary of Miraj, India, who himself operated on from 600 to 800 cataracts a year, and while not an avowed advocate of Smith's operation, he confessed that it was tried on all cases where the eye warranted the operation, although he was not able to give any special advantageous statistics other than better vision in successful cases, and but little in regard to the occurrence of infection or other disasters which come to all of us in the course of years if we operate often enough on these cases. The reason for that was that many of these people come from the interior and are anxious to leave for home as soon as possible, and being illiterate there is no means of communication with them, so that reliable statistics are not easily obtained. However, it being understood that cataracts are not found in normally healthy eyes and that such eyes must be looked upon as sick eyes, the degree of pathological changes varies according to underlying causes and conditions favoring these changes, and accounts for the acuity of vision after operations. While this may be approximately estimated by tests before operating, we find that this estimate was at times altogether wrong, and that vision is much better or poorer than we expected. This error in prognosis is undoubtedly due to degenerative changes in the fundus and the nature of the cataract, which, either chemically or mechanically, interferes with the reliability of our pre-operative examination. These agents are no doubt present in the cataracts of the Indian, and neither Smith nor any other man can change or prevent them. Therefore, giving due credit to these surgeons for their careful work and the valuable points they have brought out in their technic, which we confess is safer and superior to our former methods, as well as applicable in every case, we are compelled to doubt the wisdom of adopting this as a universal operation. We grant, however, that, if the proper technic is followed, many a lens will be removed with its capsule which never would have been attempted, and that, whenever possible, the operation should be done as it is, beyond question, the ideal operation, and whether accomplished by this or that method, if carefully and skillfully performed, the result will be gratifying. It removes any doubt as to the presence of the capsule and its liability to cause any intra-ocular irritation or any future needling or other operations and treatments necessary because of its presence in the eye.

A few of our American colleagues who have had time and money to visit Major Smith have returned with glowing reports of the operation as performed by him, and they warn the inexperienced against attempting the operation without having performed several hundred operations under Smith's guidance. True enough, a good teacher is a valuable adjunct in any new step one undertakes, whether it be surgical or in any other branch of science, but after one understands the technic and has had experience with the operation as performed by modern operators, it is not beyond his reach to acquire and retain as much skill as the one who was for six weeks with Smith if one considers the advantage that an American or European practice offers.

I have attempted this operation on twenty-seven eyes since Major Smith's and Fink's writings first came out, and have been able in only fourteen to extract the lens in the capsule. I think perhaps I was a little too timid at first and might have been able to report a greater number had I had more confidence in my judgment and known how to differentiate more readily the cases which present contra-indications. One case I successfully removed showed conclusively that there existed some adhesion between the capsule and its posterior pole and the hyloid membrane of the fossa patellaris. This case did well, although I lost quite a large bead of vitreous, but no doubt the patient has better direct vision than he would have had had the lens been removed without the capsule, and yet I should consider it a contra-indication could such a condition be foretold.

In conclusion, I wish to say that for necessary accuracy in the incision no other operation is excelled by the cataract operation. It demands dexterity, careful manipulation, and precision, as well as sangfroid and both prompt and wise decision in emergency. Major Smith and his colleagues, through their almost unbounded opportunities, have given us most valuable advice, but, like all men, they are prone to be blinded by temporary enthusiasm, and yet their work and patient investigation will leave an indelible print upon this field of surgery and will benefit a large number of well-selected cases.

ANGIOMATA OF THE ANTRUM OF HIGHMORE*

By E. F. Reamer, M. D.

MITCHELL, S. D.

In September, 1908, at our State meeting I reported a case of the above condition, which report was published in the Northwestern Lancet a few months later. I now make a further report on the same case, with treatment followed during the last three years. I stated that, in a letter from my patient, dated November 10th of the same year, she reported much improvement in health, a gain in weight, and no recurrence of the tumor at that time. However, in July, 1909, she returned with the antrum filled again, but not so tense as before.

Another operation by curettement was done as before, she remaining under my care about one month. She again gained in weight and strength for several months. I did not see her again until September, 1910, when the growth had returned and was pressing down through the absorbed gum into the mouth.

She went home and did not return until December 22d, when I did the third operation, cleaning out the antral cavity thoroughly. I found the bone being absorbed from pressure above into the orbit, and below through the alveolar process into the mouth and also into the nose. She made a rapid recovery and returned to her home in three weeks. Drainage was established through the cavity where the tooth was removed, which was enlarged, and a Meyer splint was used.

On June 2d of this year I saw her again, and distinct pulsation could be felt through the opening of the bone over the site of the tumor.

The question arises in a case of tumor of the antrum, first, Is it malignant? Nearly all recorded cases have been malignant, as I stated in my paper three years ago. If not malignant, as this case has proven, how can we operate most effectually? The injection of hot water or astringents would not be very safe in this case, I believe, from the danger of emboli.

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*Read at the 30th annual meeting of the South Dakota State Medical Association, Pierre, June 15 and 16, 1911.

The arterial supply of the nasal cavity is derived from the sphenopalatine, from the internal maxillary, from the carotid; the anterior and posterior ethmoidal from the ophthalmic. The artery of the septum comes from the superior coronary and the alveolar branch of the internal maxillary, which is distributed to the lining membrane of the maxillary sinus. The cirsoid aneurism is composed of enlarged and supernumerary arteries. Would it be safe to inject fluids enough to destroy so large a mass as is contained in this large antrum? I shall be glad to entertain suggestions.

The prognosis in this case is not necessarily bad, in my judgment, if the tumor is watched and removed before much pressure is made upon the surrounding structures.

DISCUSSION

Dr. R. D. Alway (Aberdeen): I remember Dr. Reamer's report of this case at Yankton, and I am interested to hear a further report of the case two and a half years later. I would like to ask the doctor if the ethmoidal sinus is involved.

Dr. Reamer: I cannot tell.

Dr. Alway: Any tenderness?

Dr. Reamer: No.

Dr. Alway: Any pus?

Dr. Reamer: No, there was never any involvement until after the operation. It healed up the last time and there was no infection. There is an opening right by the side of the nerve.

Dr. Alway: I also understand you made an opening through the hard palate into the mouth.

Dr. Reamer: Yes.

Dr. Alway: I was wondering if it would be feasible for your patient to wear an aluminum plate. Recently I had a case of syphilis where there was a perforation through the palate, and whenever the patient drank, the fluid went through into the nares. I had a dentist make an aluminum plate, bridged onto the teeth, and the result was gratifying.

Later: This woman died October 14, 1911, from pressure on the brain caused by a tumor, as given by the attending physician in death certificate.

CERVICAL RIB*

By M. S. Henderson, M. B. (Tor.)
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ROCHESTER, MINN.

Cervical rib occurring in man may be looked upon as a tendency to atavism. In the embryo of the lower vertebrates every vertebra has attached to it a rib, and only as we ascend the scale to the mammals do we find the ribs restricted to certain portions of the spinal column. Normally, in man, the ribs are restricted to the dorsal segment of the spine.

Since the advent of the Rœntgen ray, this condition has been brought more forcibly to the notice of the medical profession, but it is not new, for Galen[1] recognized the condition and referred to it. Perhaps the oldest description is conceded to be that of Hunwald[2], which was published in 1742. Since then numerous descriptions and reports of cases have been published. In 1849 Gruber[3] cited a series of cases, and twenty years later he brought the number of reported cases up to 76.

These cases were but rarely recognized, clinically, as is shown by the report of Pilling[4], in 1894, which comprised 139 cases. This included all classes of cases, and only 9 of the number had been recognized during life. In 1907 Keen[5] reported a case and reviewed the literature in his characteristically thorough manner. He stated that he had seen his first case two years previously.

It has been noted by various observers that the condition is found, usually, with other deformities; this, however, does not appear to be borne out in the majority of instances, as more often, it is an abnormality by itself. Marburg[6], Oppenheim[7], Borchardt[8], and Schönebeck[9] mentioned it in connection with syringomyelia. Levi[10] reports the condition in connection with a case of multiple sclerosis, and Spiller[11] and Gittings[12] found it in a case of progressive muscular atrophy of the cervicobulbar type. On these grounds it has been claimed by some observers that the condition arises in the soil of neuropathic diathesis. This view, however, does not appear to be based upon definite data.

The age at which cervical ribs occur varies from intra-uterine life to extreme old age; but very rarely is any complaint made until adolescence. There is a marked variation of the occurrence of this condition in the two sexes, the female being more prone to the condition. In Keen's collected operative cases, 42 in number, there were 31 females and 11 males. In the cases reported in this series there are 9 females and 3 males, approximately the same proportion.

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*Read before the Southern Minnesota Medical Society, Aug. 3, 1911.

Anatomically, the subject is of exceedingly great interest. With very few exceptions cervical ribs have arisen from the seventh cervical vertebra. Previous to the free use of the Rœntgen rays as a diagnostic aid in neck and chest work, it was generally supposed that cervical rib occurred oftener on one side than on both sides. They are, however, more often bilateral, although there may be a great difference in the degree of development, one side being rudimentary, and only demonstrable by the *x*-ray. (Fig. 1.) There is usually a marked variation in size, and, naturally, the side which is complained of is the side on which is the larger rib.

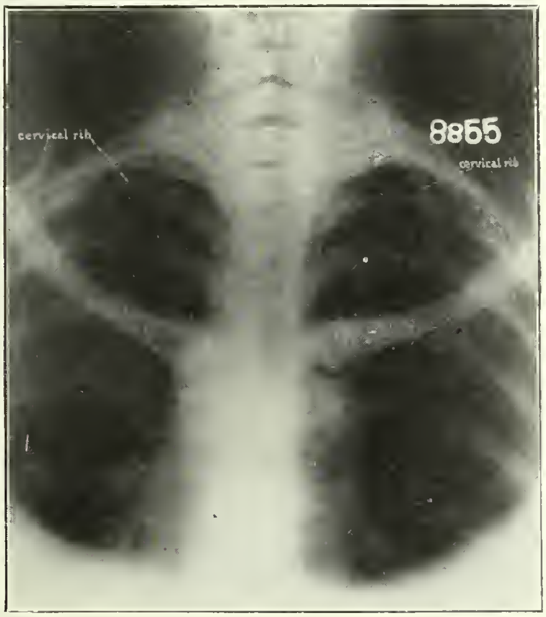

Fig. 1. Radiograph showing double cervical rib.

The vertebrocostal articulation varies: It may articulate directly with the body of the vertebra or with the intervertebral disc. The rib may be movable if the articulation behind is good and the sternal end is free. When the development of the normal rib and the embryologic structure of the cervical vertebra are considered, one can readily understand the development of the supernumerary rib. Each cervical vertebra has, normally, a costal process, which, with the transverse process, forms the costo-transverse foramen. It is the excessive development of this costal process which gives rise to the cervical rib (Fig. 2), and the process may be traced on all the vertebræ. In the thoracic region it gives rise to the normal ribs, in the lumbar region it is very rudimentary, although occasionally ribs of fair development are seen in this region. The process may also be traced to the sacral segment, but here it is markedly changed.

These ribs vary greatly in their development. Gruber's classification, divided into four groups, is perhaps the most satisfactory on account of its simplicity. In those of the first group there is a very slight increase in the costal process, not reaching beyond the transverse process. In the second group the rib protrudes beyond the transverse process to a certain degree, and either terminates in a free end or is attached in some way to the first rib. The third group comprises those which extend well beyond the transverse process and a considerable distance toward the first rib, even reaching the cartilage of the normal first rib. The rib possesses a good body and is often united by a ligament to the cartilage of the first rib. In the fourth group the ribs are completely developed, articulating with the cartilage of the first rib and with the sternum.

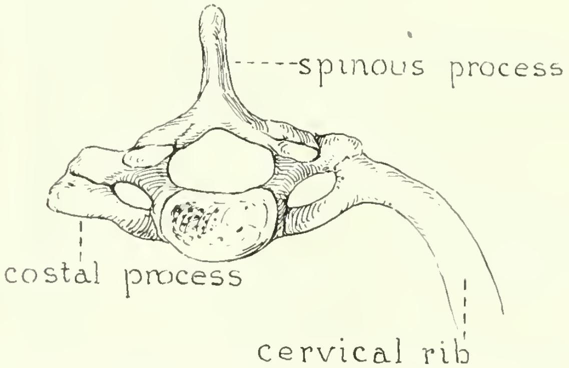

Fig. 2. Showing abnormal development of the costal process into the cervical rib. (From Morris' Anatomy.)

In the bilateral cases the higher rib is more apt to be the one that produces symptoms. It is related, anatomically, to the subclavian artery, the brachial plexus, the subclavian vein, and the pleura. The association of the artery with the supernumerary rib is of prime importance and produces the vascular symptoms. If the rib is short, and of poor development, the artery does not pass over it, but runs in front of it; the artery has never been observed running behind the rib. The presence of the extra rib elongates the chest cavity, and the artery must pass down over this at a more acute angle. The scalenus anticus muscle is inserted into the anterior end of the rib. The subclavian artery crosses it posteriorly to this insertion, and rests, as it were, between the rib and the muscle, this relation giving rise to the pressure on the vessel. The vein lies in front of the insertion of the scalenus muscle and so escapes this vicious position. Edema is rarely present in the arm of a patient suffering from cervical rib, so, since the edema would be caused by pressure on the vein, this anatomic condition accounts for its absence. Gangrene and nerve manifestations are much more common than edema.

With pressure on the artery one would naturally expect a tendency to enlargement or aneurism proximal to the point of pressure, but this does not occur. In the cases reported by Murphy[13], Keen, and Erlick[14], it was shown positively that there was a dilatation, but that it occurred distal to the pressure area. In many cases the pressure on the artery has been so extreme as to cause gangrene of the finger. A bruit and pulsation over the tumor are often present. Difference in the radial pulses may be detected. Thrombosis, varying in extent, may arise. The forearm may be involved and the thrombosis ascend into the axillary artery, to the subclavian itself. Collateral circulation becomes established, with consequent obliteration of the pulsation in the normal channel.

The brachial plexus is generally implicated; and the nerves involved are those coming down in the inner cord. The eighth cervical and first dorsal nerves are spoken of as "the nerves of attack in cases of cervical ribs."

The areas supplied by the nerve of Wrisberg and the ulnar are commonly complained of. Howell[15] states that the route of the first dorsal nerve passes almost directly upward on the neck of the first thoracic rib, thus easily coming in contact with the supernumerary rib as it curves downward and forward. Thorborn[16] demonstrated a connection between a wasting of the intrinsic muscles of the hand and the presence of the cervical ribs. By means of *x*-ray examinations, Jones[17] found well-marked cervical ribs in ten out of fourteen patients who had this condition of the hand. Varied pains in the arm and neck are complained of, which are accounted for by this pressure on the brachial plexus.

The relation of the pleura is to be considered anatomically, but it is seldom encountered surgically. In the youngest of our patients operated upon, the pleura was opened with no bad results. Scoliosis is often seen with the convexity toward the side on which the rib is, or, in bilateral cases, with the convexity toward the side of the largest rib. Hibbing[18] examined 400 cases of scoliosis by the *x*-ray and found cervical ribs in two per cent of them.

The majority of people having cervical ribs do not have symptoms. Dysphagia may be present, but it is due to muscular spasm rather than to any actual mechanical obstruction. Borchardt believes that in only five to ten per cent of cases is there any trouble resulting from this condition. However, an estimate of percentages is manifestly difficult, and open to error.

The onset of symptoms is late, and various reasons are assigned for the delay: first, traumatism causing periostitis; second, loss of padding in wasting diseases, such as rheumatism, anemia, etc., bringing the nerves in contact with the rib; third, retraction of the pulmonary apices, due to contraction of the fibrous tissue of an old healed tuberculous focus. Nichol[19] claims to have demonstrated this in four cases. It is hard to determine which is the most probable cause, and there may frequently be an association of these causes. In the cases seen in the clinic at St. Mary's Hospital, there had seldom been any complaint until after the deformity was noted, and in but one case had the patient thought that the tumor became more prominent with the onset of pain. In speaking of the patients who complain of this condition late in life, Keen says: "As we grow old the tone of the muscles is lost, and the shoulders drop, thus increasing the angulation of the structures passing over the rib."

The treatment in these cases is not necessarily surgical. Medical treatment should be resorted to first, and if this fails, the rib may be removed. The risk of an operation is slight, and in all of the reported cases the mortality was nil.

During the last three years twelve cases of cervical rib have been observed in St. Mary's Hospital (Mayo Clinic), nine of whom were females, and three were males. The age of the oldest, 60 years; of the youngest, 5 years; average age, 38 years. Only three of the twelve had noted any abnormality in the neck before examination in the clinic. Four of the twelve cases had symptoms which could be attributed to the extra rib. These four were operated on, and the rib removed. All of these patients were relieved of their symptoms.

Seven of the cases were bilateral, and five were unilateral. Of the unilateral, three were on the left side and two on the right. This proportion of unilateral to bilateral is a more even division than ordinarily occurs, judging from the literature consulted. However, nothing definite can be concluded from so small a number of cases.

All of the above cases were subjected to x-ray examination of the chest, so that even rudimentary ribs are taken into consideration. Nothing of particular interest pertains to the history of these cases, and a detailed report is not given. None of them are the extreme type described in some of the literature, i.e., gangrene of the finger tips, etc. All of the patients were operated on for nerve-symptoms (pain) except one, a child of five years, whose mother had noted a deformity in the child's side and wanted to have it removed. It is accordingly safe to assume that cervical rib is not a rare condition; that the greater proportion of them give no symptoms, whatever; and that routine examination of the supraclavicular fossa by inspection and palpation will only further prove that the condition is quite common.

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VICEROPTOSIS: DISCUSSION OF DR. LE ROY CRUMMER'S PAPER

Dr. Crummer's paper, published in our issue of December 1st, reached our publication office without the discussion of the same, and through a misunderstanding on the part of the publisher, it appeared without the discussion.

The paper was one of special interest and the discussion brought out a number of new points, and we therefore deem it important that the discussion be published, even though it does not accompany the paper itself.—The Editor.

DISCUSSION

Dr. W. T. Stumm (St. Paul): The subject that Dr. Crummer has just presented is to me an extremely interesting one, and I am heartily in accord with the way in which Dr. Crummer looks at the condition. I am glad he has used the word *condition* and not *disease*.

To me the condition is not a disease; we cannot look upon it as a disease. We are dealing here, not with any one particular organ,—not with the stomach, not with the kidney, not with the intestine,—but we are dealing with the viscera in general. In one case the stomach is more involved than some other organ; in another case it is the kidney; in another, it is the intestine; and so on; but when we trace these cases back, in my way of looking at it, at least, we are dealing with the patients that have developed a condition of abnormality long before the individual was born, and they come into the world handicapped, just as much as an individual comes into the world handicapped by a club-foot, or a cleft-palate, or some other condition of that sort. If we look back into the development of the embryo, we notice that the stomach is first developed simply as a straight tube running through the embryo, but as time goes on, about the third month, radical changes take place. The stomach around the third month, and sometimes a little later than this, rotates on two axes. It begins to rotate on a vertical axis and a horizontal axis, and it is assuming the position that the stomach will occupy when the child is born. In individuals with visceroptosis the rotation is not complete at all, and the vertical position that was assumed early in embryonic life has a tendency to remain after the individual is born. The right side rotates to the front, and where there is not a complete rotation the attachments which hold the stomach in its normal position are not firm enough to hold it in place. At the same time changes are taking place, and the ascending colon, which may be away up high, is gradually working itself down, and even though it works down to its normal position the attachments in this condition are not firm at all.

Sometimes we have a condition that is only temporary, as the cecum is capable of being moved into various positions, and if we go back to the beginning, to the embryonic life of these individuals, I think we have reached the stage where we are reaching the etiological factor we had to deal with in these individuals, and they can come into the world and live as normal individuals.

The cases mentioned by Dr. Crummer do not show them to be normally developed individuals. The chest is narrow and slim, and the angle is a long, narrow, slim angle, coming down to the margin of the tenth rib. The condition is extremely frequent, and I do not know of any way we can get statistics of the condition that would be of much value to us. Statistics, as a rule, are not of much value in determining such a condition, and they would be extremely difficult to secure. All I can say is, that this condition is extremely frequent. At least one-half of the people who have visceroptosis are not suffering from the effects of it, or at least are not suffering from the effects of it to any marked degree. The effect sometimes comes late in the life of the individual, and the patient may have some acute infectious disease or some mental strain that comes along in the life of the individual, and these complications are much more likely to occur in this condition. We see this condition most frequently in women, not exclusively so, however, and most frequently we find it in middle life people, although we frequently find it in a marked degree in people who are under thirty years of age. If we consider the things more frequently ascribed to it as contributing factors, these cases are often put into two classes, one the congenital class and the other the acquired class; and then again the congenital class is a large one, but back of the whole is the unequal development to start with, and with this development may come the other things ascribed to it.

Dr. T. Bratrud (Warren): Dr. Crummer's paper, I think, opens up a subject for a great deal of thought. As you all know, there is a very large number of cases that come under the grouping of neurasthenia. As Dr. Crummer has shown, this group of cases has been materially reduced by reason of recognizing this condition of visceroptosis, just as many of our cases of neurasthenia, formerly so considered, turned out to be cases of hypochondria or incipient cases of cerebral tumors.

Dr. Crummer was rather hard on the surgeons in some of his remarks, but at the same time I think they are well merited. There are nearly twenty types of operation for retroverted uterus, and probably as many for floating kidney, which correspond in results to similar operations on prolapsed stomach. While we find so many types of operation, all alleged to accomplish the same purpose, there is comparatively little indication for operation at all. That is, we overlook the condition of the patient. At the same time, these patients come into the world defectives, just as much as the patient with the cleft-palate or club-foot, and they are entitled to surgical relief, because they may also develop ulcer of the stomach, gall-stones, appendicitis, and other conditions just as do other people. Furthermore, these enteroptotic conditions many times result in dangerous and crippling adhesions, so that these cases should be carefully studied, and they need to be more carefully studied than any other class of patients we have. Conditions are frequently discovered which can be benefited by surgical means.

Dr. Geo. D. Head (Minneapolis): I am sure no medical man has any quarrel with the conservative surgeon on this question. It is the promiscuous operating, without first making a definite diagnosis and carefully studying the case, which causes difficulty and arouses criticism. The trouble with the surgeons has been, that, in the group of cases described by the writer of this paper, the diagnosis of gall-bladder disease has been made whenever the patient complained of pain over the gall-bladder region; the diagnosis of appendicitis has been made whenever the patient complained of pain over the appendix; the diagnosis of gastric ulcer has been made whenever the patient complained of pain after eating; the diagnosis of uterine or ovarian disease has been made whenever the patient complained of pain in the pelvis; etc.: and in each instance operation has been advised in the hope of curing the local trouble, without first making a careful examination to determine whether or not any one of these suspected organic conditions really existed. The important question, it seems to me, before us is, How is the profession to avoid continuing the mistakes made at the present, for it must be admitted that this unnecessary surgery cannot help but serve to discredit the otherwise good work on the part of our surgeons? I would suggest, first of all, that a careful history of the patient's illness be taken. This, oftentimes, will put one on the right track. The nervous symptoms in the case will come out prominently and the local complaints fall into the background. In the second place, a careful examination of each patient should be made before operation. The position of the organs should be determined; the stomach dilated and outlined; the position of the kidneys determined; careful pelvic and rectal examinations made; the presence or absence of anemia and the presence or absence of renal disease should be determined. It is only by a careful, systematic examination of the patient from head to foot that these cases of enteroptosis and neurasthenia, known generally as Glenard's disease, can be culled out and prevented from going to the operating-table. Exploratory surgery in abdominal operations ought to have no place in this intelligent age of medicine. We have been making too many snap diagnoses in supposed abdominal diseases.

I have observed one fact, which the writer did not touch upon, namely, that in quite a percentage of these patients the subcutaneous tuberculin test is positive. You will remember that the general build of these individuals resembles closely, in chest-formation and general appearance, persons in whom we are accustomed to look for tubercular infection. Quite a large percentage of persons harboring tubercular infections have visceroptosis and are, therefore, ill nourished. Many of these patients, so far as my experience goes, show no active lesion, but are no doubt harboring a latent tubercular infection of mild type.

Dr. Archibald MacLaren (St. Paul): Dr. Crummer has presented in a very excellent and a very interesting way, the medical side of visceroptosis, and I believe with him that these cases are not, as a rule, surgical, that they are medical, and also that it is often very difficult to diagnose them. It is always difficult to distinguish the true neurotic patient from the nervous patient who has some true organic lesion causing the nervousness. We were not able to distinguish these two classes of cases apart until we were able to get *x*-ray pictures of the stomach. The normal stomach, although it hangs straight down in the abdomen, still shows good tone, or power to contract, but the stomach in the patient suffering from visceroptosis is baggy and flattened at the pyloric end, having lost its power to contract, and it hangs much lower in the pelvis.

Stiller, Greene, and most medical men have taken the position that these cases are congenital. If these cases are congenital, how can we explain the rapid improvement under rest and forced fat-feeding? All medical men have known for years that, if these patients can be made to gain ten or fifteen pounds, they will get well, and stay well as long as their nutrition can be kept up. (At this point Dr. MacLaren showed prints of three cases of marked visceroptosis with pictures taken before and after a modified rest cure. The pictures taken after showed marked improvement in position with disappearance of gastric atony.)

The first sign of neurasthenia is visceroptosis, and on account of the starvation accompanying visceroptosis the nervousness is exaggerated and made worse. We have several children about ten years of age who belonged to this class of cases and who gave symptoms of chronic appendicitis, who promptly got well under a modified rest cure and forced feeding without operation.

Dr. H. B. Sweetser (Minneapolis): Last night before the Academy of Medicine, Dr. Tomlinson read a paper upon the "Relational Dependence of the Symptomatology of Local Disease upon the Morbidity of the Nervous System," and I think what he said struck the keynote of explanation in this discussion of visceroptosis. In these patients two distinct disturbances are present; first, the general, i.e., the disorder of the nervous system, which the essayist considers supreme and *only* of importance; and, second, the local disturbance, beyond which the surgeon, too often, cannot see, and which he operates upon without at all considering the morbid nervous system. It is such partial therapeusis that has brought discredit and failure in the surgery of these patients. On the other hand, there are many of these patients who refuse to get well under any and all methods of medical treatment until the abnormal local abdominal condition has been remedied by surgical attack. I have operated on a number of these patients whom medical treatment, over long periods, had failed to cure, doing an appendectomy, cecostomy, nephrorrhaphy, or such other operation as I found necessary, and have then found that proper medical treatment has resulted in a cure. If treatment in these cases had stopped at the completion of the operation, the patients would not have gotten well.

The point I wish to make is, that the diseased nervous system and the diseased local conditions react upon each other in a vicious circle, and that neither can be neglected if a cure is to be attained. In other words, both surgery and internal medicine must take each its proper part in the treatment of these cases. I do not deny that the part of internal medicine is the greater and more important, but, when local abnormal conditions are present, I am sure it will fail unless it accepts surgical aid.

Dr. J. E. Moore (Minneapolis): After the severe arraignment of the surgeon, I rise in behalf of surgery, not in its defense, as it needs none.

A number of years ago Dr. Crummer was my interne, and he helped me to anchor a lot of kidneys, tack up stomachs, etc., as we were doing at that time, and I have no doubt but it was then that he gained the knowledge that enables him to stand so firmly upon the ground he does. Pathologists made post-mortems upon patients who had been treated by physicians for peritonitis and inflammation of the bowels for ages without recognizing appendicitis, and the physicians would still be in the dark had not the surgeon, who had the courage of his convictions, performed vivisections and established the real pathology of the condition known under so many names. Today the physicians have honestly turned the treatment of appendicitis over to the surgeons, where it belongs. Many years ago Glenard enlightened the profession concerning visceroptosis, but the average physician paid very little attention to the subject. With the development of abdominal surgery, surgeons began to take note of these physical defects, and very naturally concluded that these defects were the cause of the patient's suffering, and that the best means of treatment would be mechanical; hence all these scars mentioned by the essayist. It is necessary in surgery, as in everything else, to go to extremes to find what the happy medium is. These operations did only temporary good, and, on the whole, were very disappointing, but they did not kill people; and while they were rather hard on the present generation they have enabled us to demonstrate that operations are not curative in these conditions, and have relegated these cases to the physician where they rightfully belong and have very materially helped the physician to establish the ground upon which he now stands. In this way these operations, now discredited, alike by surgeons and physicians, will prove of untold value to future generations. These scars should not be placed to the discredit of surgeons, but should be looked upon as milestones of his progress, for, having demonstrated the inefficiency of surgery, he honestly turns these patients over to the physician. Real surgeons no longer perform these operations. It is only the would-be surgeon, the one without personal experience, or the honesty or ability to profit by the experience of others. Our worst difficulty now is that incompetent physicians are still referring these cases to us for operation.

Dr. Crummer (Essayist): I want to thank the members of the Association for a very satisfactory discussion of my paper, and also for giving me an opportunity to mention several things I did not feel like putting in the paper itself.

Dr. Stumm spoke of visceroptosis following definite diseases, but in this I cannot agree with him. It has always surprised me how well these cases stand organic disease. I have seen wonderful improvement follow typhoid and other infections in well-marked cases of this type.

Dr. Bratrud brought out a point frequently made in these cases in stating that the adhesions caused by this condition can be cured by surgical means. I cannot agree with this, as operative attack on the peritoneum in such cases always results in greater adhesions than those previously existing. In fact, I have a case in mind in which three days after the sixth operation mechanical ileus developed, and on postmortem we found the lower part of the abdomen a mass of fresh adhesions. Dr. MacLaren has presented some very interesting *x*-ray pictures of these conditions and shows that many of these cases improve without going through the routine treatment I have advised. He is quite correct in this. As the cases come to us, a compromise with our ideal treatment is necessary in a very large proportion of cases, but I have had good results with modifications of the treatment in many cases which could not go through the typical rest cure.

Dr. Moore, one of the best friends I have in the world, tells us that the surgeons have taught us all about this condition, but Weir Mitchell wrote his book on "Fat and Blood" in 1876, and there is very little in symtomatology and treatment of these conditions which is not properly brought out by Dr. Mitchell. Dr. Moore also says that it is the other surgeon who operates on these cases. I only wish that were so, but I have seen these cases which have been operated on by many of the best surgeons in America. One case I remember distinctly which had been operated on nine times by a professor of surgery in a leading university of the East.

As far as chronic appendicitis is concerned, I am willing to grant that we can have a recurrent appendicitis, but chronic appendicitis scarcely exists. There was a very clever pathologist in one of our hospitals who examined 100 appendices in cases operated on for chronic appendicitis by various surgeons, and there was not a single indication of disease in any one of them.

I cannot agree with Dr. Head in regard to tuberculin, but I confess I have not worked this out, yet it has always been a surprise to me how small a percentage of these cases become tuberculous. With all the predisposing factors present, I have seen tuberculosis only three or four times in over 500 such cases.

Again, I want to thank you for the honor of addressing you, and I beg to assure you that I appreciate the very excellent discussion my paper has brought out.

THE ROLLING DOWN OF RETRACTED TENDONS FOLLOWING ACCIDENTAL DIVISION

By A. C. Strachauer, M. D.

MINNEAPOLIS

The following procedure, as practiced in the University Surgical Clinic, Berlin, easily overcomes the difficulty of obtaining for suture tendons which have been retracted within their tendon-sheaths by their controlling muscles, following accidental division.

Place the initial extremity of an ordinary Esmarch rubber bandage just above the origin of the muscles controlling the severed tendons, and secure by a few circular turns. Apply firmly with the rubber greatly on the stretch, a simple, descending spiral bandage, each turn well overlapping a portion of the preceding one by a third or a half. The retracted tendons will so be rolled down, and the severed extremities brought out into the wound; i. e., an incised wound of the forearm severing the tendons, the upper ends of which are retracted up the forearm within their tendon-sheaths. Place and secure the initial extremity of the rubber roller just above the elbow, and apply the descending spiral bandage as described. The ends of the retracted tendons will first present themselves at the openings of their tendon-sheaths, and then be rolled out, permitting their being easily grasped with forceps and so obtained for suture.

The procedure is simple and effective, and obviates the otherwise necessity, at times, of the longitudinal slitting up of the tendon-sheaths.

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OUR CHANGE OF NAME

We set forth at length in our issues of January 1 and July 15, 1911, why it has become, not only desirable, but almost imperative that the name of this paper be changed. We believe the wisdom of this action cannot for a moment be questioned by any one who will read the editorials in the above-mentioned issues.

In our opinion, it will be many years before any Northwestern state will have sound reasons for publishing a purely state journal, and so long as the cities of St. Paul and Minneapolis remain the gate-way of the Northwest, it will be an act of folly for Minnesota to cut loose from the states that have now come into the pact which makes for the advancement of a united Northwestern profession. The problems that await solution by a united profession are too important to be jeopardized by any sentiment of disunion, and we trust, for the good name of the profession and for the welfare of the people, that, when THE JOURNAL-LANCET cannot serve a now-united profession in the three principal Northwestern states, in an efficient and acceptable manner, some other paper will be called upon to do it, but any attempt to make a change upon the basis of a paltry saving to the individual members of these associations, should be frowned upon, and we believe it will be whenever it is proposed.

OUR NEW EDITORS

We welcome as editorial associates Dr. R. D. Alway, of South Dakota, and Dr. J. H. Rowe, of North Dakota, who were duly elected by their respective State Associations to be associate editors of THE JOURNAL-LANCET. Both Dr. Alway and Dr. Rowe have served for a number of years in the important positions they now hold as secretaries. They know how thankless, in many respects, such work is, and yet they cannot but be conscious that the best men in the profession appreciate their efforts and their sacrifices for the profession and the public.

The state association is just about what its secretary makes it, and the man who thinks that the medical men of either of these states have not kept well to the front in the march of medical progress, will find out his mistake, and find it out to his sorrow, if he ever reads a paper or takes part in a discussion before one of them on such assumption. On the average, the physicians in both of these states are younger than the physicians in Minnesota, and this means that they are, on the whole, more nearly cotemporaneous with the most modern work in medicine.

We rejoice that the medical men of the three states have joined hands in a common effort to accomplish all the good work that is possible in the most honorable profession known to the world, a profession whose motto has ever been, and will ever remain, service to one's fellow man.

EXPLANATORY

The editor regrets that no paper read before the Minnesota State Association appears in this issue. The reporter of the meetings has failed to furnish us with the discussion of the papers read at the first session, and only one of the orations has been sent us by the men who delivered orations. This came too late for this issue.

COMPLETE YOUR FILES

The publisher of THE JOURNAL-LANCET will supply missing numbers, without charge, to all subscribers who apply for them, so long as our extra copies hold out; but those who bind or retain their files are requested to apply for missing numbers during the present month.

THE RIGHT SOLUTION OF A GREAT PROBLEM

To obtain a supply of pure milk for a large city is a great problem, but it is a long way from a new one. Minneapolis is just now considering the question of substituting jail sentences for fines for the violation of the city's milk ordinances, i.e., for delivering milk below a certain bacterial standard of purity. Somehow our law-makers cannot learn the lesson that evils do not decrease with a statutory increase of penalties; but that they do not is a fact so plain that it needs no demonstration.

The Hennepin County Medical Society has found a better way. It proposes to make the production and delivery of pure milk profitable, and, the world over, what is profitable will be done, and what is both profitable and honorable will be done soon.

The Society has entered into an arrangement with a reliable dairyman at Jordan, Minn., which promises to be the beginning of a better milk supply than the city has ever had, or can ever hope to obtain by a system of fines and drastic punishments for the violation of its milk ordinances. The Society's Milk Commission has done its work in a manner so thorough, business-like, and commendable as to merit the praise of every citizen. We publish the report of the Commission's work and plans in full in one department of Society Reports, and we suggest that the whole be read by all who read these lines.

VACCINATION STATISTICS

We publish in this issue a very valuable paper on the subject of smallpox. Unless the facts set forth in this paper are heeded by physicians, and by them impressed upon the public, we may soon see the day of a sad reckoning on the part of the public.

If the statistics given in this paper tell no story and make no prophecy, then no classified knowledge has any value. To be sure, lies and statistics, especially vital statistics, are popularly supposed to be blood-brothers; and there are reasons for this belief. Statistics are often based on imperfect data; still more often they are most atrociously misinterpreted. It is easy to fix the figures themselves, for instance, in preparing death-rates for publication. It is still easier to fix, after publication, the interpretation of the figures, attributing to almost any general condition the reasons for the death-rate which is offered, and the public will swallow almost any favorable statement regarding almost any death-rate which almost anybody chooses to make. Yet all public-health men know that the "crude" or "general" death-rate (that usually published) carries with it no information concerning the "sanitation" or "healthfulness" of the community concerned. Death-rates, worked out by age and sex distribution, and compared with similar results from other communities (a thing almost never done for public consumption), do indicate something to a trained statistician, but even here an intimate knowledge of all the factors of the individual age-and-sex groups in all the communities concerned, is necessary for reliable deductions. Still the very public which will swallow a crude death-rate whole, and ask for more, will reject or question vaccination statistics. This is an exact reversal of the attitude which any informed mathematician would necessarily take.

The general death-rate of a city depends upon factors of immense complexity. To determine the relative healthfulness of various communities by comparing their general death-rates would be as fallacious as it would be to determine the relative stability of various corporations by considering one point only, say, the number of shares of stock sold by each in a year, without reference to the age of the different corporations, the par values of the different stocks, the relative efforts made to sell them, or the prices received per share. Everyone knows that a new wildcat company, gorgeously advertised and offering stock at twenty cents on the dollar, may sell 100,000 shares, while an old company, solidly established, with stock away above par, may not sell 1,000 shares.

In considering the statistics of vaccination, however, the issues are narrowed to a single point. Only one variable is to be considered—given so many persons vaccinated and exposed to smallpox, how many contract smallpox? Given so many persons not vaccinated and exposed to smallpox, how many contract smallpox?

This is analogous to estimating but one point concerning a business, such as the question of the reliability of investments in gilt-edged first-mortgage securities. Overwhelmingly convincing statistics could readily be produced to determine conclusively the one point. Granted so many instances where such securities were concerned, how many succeeded, how many failed?

In brief, when errors in interpretation of otherwise adequate statistics arise they rest generally on the fallacy of comparing the sum-total results of many factors, and then attributing the controlling influence in producing those sum-total results to some one factor; usually the one to which the alleged statistician hopes to give a fictitious value.

In vaccination statistics the issue is clearly drawn: One factor and one factor only is considered, the results being necessarily conclusive, provided of course that the figures dealt with are in themselves trustworthy and on a sufficiently large scale.

OUR UNIVERSITY HOSPITAL TRAINING-SCHOOL

Augustus S. Downing, M. A., LL. D., First Assistant Commissioner of Education of the State of New York, in an address published in *The American Journal of Nursing*, says some interesting things anent the training of nurses and the education in medicine at the University of Minnesota. We quote:

> I am deeply interested in the nurses' training-school in the University of Minnesota. There, it seems to me, is a school organized on the right principles. They require a physical examination of every candidate for admission, and unless she can stand the test the individual is rejected. Then they give that young woman four months of preliminary training before she is admitted to the hospital at all. She pays $25 for this. She is independent, just as the student in the normal school here, or in Columbia University, or elsewhere, is independent. She lives where she pleases, and does what she pleases, outside of the fact that she must do the work of this course and at the end must satisfactorily prove it. At the end of the preliminary training she is given a month [two months] of probation; she is taken into the hospital to see whether, after all, she is fit to train, whether she can be trained or whether she cannot; whether she will be a nurse or whether she won't; whether she has human sympathy enough, whether she can take the professional course; and, after a month [two months] of probation, the Superintendent of the Nurses' Training-School and a Committee of the School determine whether that girl shall be admitted or not. Then, after that, she has about two and a half years' of training in addition. She is permitted to work only eight hours. That includes her theoretical training, her professional training in the nursing-home, and her work in the wards, and she is never allowed to work alongside of the bed of a patient unless there is a trained nurse there to direct her.
>
> It seems to me that Minnesota has started the problem of nurses' training in the right direction; that is, going at it in a direct, straightforward way, instead of going around it from the rear; and I believe that Minnesota will out-distance the other states in no very long time in the question of training nurses as they come from her training-school connected with the University.
>
> Columbia University has done a great work in its post-graduate course, but a post-graduate course means *after* some other course. This is the *first* course.
>
> Now, I am not surprised that Minnesota should take this road. We cannot reciprocate with Minnesota in medicine. Her law is not right. Our law says that we cannot reciprocate in medicine with any state unless the law specifies a requirement not lower than ours. The law of Minnesota leaves the requirement for admission to the medical profession to a Medical Examining Board. But we are helpless. We know this, that Minnesota is in advance of us in its requirements for entrance to the medical profession, even though we cannot reciprocate. We have told them, time and again, that if they would only change their law we would be only too glad to reciprocate with them. But they say, "Take us as we are or not at all." So we have to leave them under the law. They are in advance of us in medicine and, so far as this school is concerned, are in advance of us in the organization of a nurse's training-school. They are really going to take nurses primarily for the purpose of educating nurses, not primarily for the nursing of the sick at a minimum expense to the hospital.

REPORTS OF SOCIETIES

HENNEPIN COUNTY SOCIETY

The Society met on Dec. 4th, with fifty members present.

The Chairman of the Executive Committee presented the following letter from Judge Waite of the Juvenile Court:

> For some months past Dr. H. D. Newkirk has been making gratuitous physical examination of children specially referred to him by this court, the results of which have been such as to fully confirm the expectation which I had when the arrangement was made, that such examinations would be of very great service, not only directly to children who come before the court, but indirectly to myself in the performance of my duties. I am quite anxious to have the service extended, and it has occurred to me that it is possible that funds might be provided from private sources so that we could secure examination of practically all the children brought into court and found to be delinquent. At present only a very small proportion of such children are examined. If we could make it general it would not only increase the benefit to the individual child and enlarge the information upon which the court could handle the cases, but we might obtain statistical information which would be of much value to the court, and perhaps also to the medical profession.
>
> If the Hennepin County Medical Society or its executive committee should take the view which I have outlined above as to the desirability of such physical examination of delinquent children, it would

assist me in making arrangements to accomplish this if I might have some expression of opinion,—perhaps in the form of a resolution.

I bring this matter to your attention after consultation with two or three members of the Society who seem to be interested.

Yours very truly,
E. F. WAITE.

The Committee recommends the adoption by the Society, and I move the adoption of the following resolution:

Whereas, delinquent children are often sufferers from diseases that aggravate if they do not set up abnormal mental states which result in said delinquency.

Therefore be it resolved, by the Hennepin County Medical Society in meeting assembled, that it heartily approve the plan, as outlined by Judge E. F. Waite, of giving such children a thorough medical examination with the object in view of discovering disease and defects and having the same corrected where possible.

Be it further resolved, that a copy of these resolutions be spread on the minutes of the Society, and one be sent to the Hon. Judge Waite.

Motion seconded. Carried.

Resolutions were passed heartily commending the plan.

The Charter Commission, now framing a new charter for presentation to the voters of the City, invited members of the Society to appoint a committee to attend the Commission's meetings and advise with the Commission. Drs. Knight, Bell, Crafts, Hamilton, and Nelson were appointed.

The Milk Commission reported as follows:

The former report of this Commission was rendered nearly one year ago. At that time there was a widespread and active agitation in behalf of cleaner dairies and better milk. At the time and since we have participated in all these efforts. We believe it true that much better conditions now obtain.

Following our recommendations and the instructions of the Society to us we have endeavored first to secure a certified milk; and, further, we have entered into every plea for improvement in the milk supply in general and in particular.

We were brought anew to face the same problems when the society made the Milk Commission the representatives to the organization committee of the Infant Welfare Association. Your commission have maintained a considerable correspondence, partly because of our membership in the Association of Medical Milk Commission, but largely in our own field. We have carefully reviewed the report of the latest convention of Medical Milk Commissions. We have made five individual trips to the dairy that supplies certified milk to St. Paul, two individual trips to Jordan, Minn., in interest of an inspected milk mentioned later in this report. We have consulted often with the city and state boards of health and with their laboratories. We have again aided before the council committees the efforts for better milk service. We have visited often the plant and conferred with the management of the larger pasteurizing plant. We have secured and attended many hearings in the effort to establish a delivery to all parts of the city for selected grades of milk. We have spent much time and labor, even going before the railroad and warehouse commission to obtain rates for the shipment into the city of a bottled-on-the-farm "inspected milk." That "long time necessity and high nutrient"(?) beer—so advertised for nursing athletes and convalescent bums—had a very favorable rate. Babies' milk had an absolutely prohibitive rate on all roads in Minnesota. Rates have been secured and a contract signed today to bring this milk to the city and to deliver it to any one in the city in quick time and good condition. This milk will bear the approval of this Society on the label of each bottle. It is to sell at 10 cents per quart.

It is hoped that this move will invite other selected grades of milk into the same channel.

The attention of physicians and others is asked to this provision of a suitable milk.

The various milk supplies of the city frequently fall below grade, wherever the grade is attempted. Where market milk has been used for infant-feeding we have made lists of names of dairymen traversing the same district, and when these were taken to the record-sheets it was found that none of them had kept within the required standard. It was found that all had fallen down with the advent of colder weather. Milks that ranged well in the fall had gone to 400,000, 500,000, 700,000 and 1,250,000 bacteria.

In spite of these facts the market milk is better than ever since the standards are enforced. More inspectors and more frequent samples from each wagon are required to control the methods of milk production. The campaign of education undertaken by the health department is sorely needed.

The holding progress of pasteurization has greatly improved the milk so treated. Their counts are now well within 100,000 most of the time.

Milk from one dairy under a cap-indicating certification is not certified in the city. We have protested its introduction under this cap, and have invited its improvement and its certification.

One milk entitled to the grade of "inspected" milk is sold at 12 cents and has usually maintained that grade, but not always.

There are other baby and special milks reaching the city, but obtaining only restricted delivery.

Many things yet remain to be done in the city work. It has often been said that we must pay the price for good milk in order to get it. It seems also true that if we are to get any uniformly good milk some part of that price must reach directly the pocket of the milker. He will learn much and practice what he learns when the ideas are snugly in his pocket.

It is well to note here that the health office is the oldest, best established medical machine for the improvement of the milk supply. It should be used and supported. May the Charter Commission secure it to the fullest and unhampered service of all the people.

We report herewith also the contract which secures the inspected milk.

G. D. HAGGARD,
J. P. SEDGWICK,
ROBT. WILLIAMS,
Milk Commission.

AGREEMENT ON INSPECTED MILK

This agreement, entered into this 4th day of December, 1911, by and between Mr. E. C. Gran, of Jordan, Minn., party of the first part, and the Milk Commission of the Hennepin County Medical Society at Minneapolis, Minn., party of the second part,

Witnesseth: That, in consideration of the performance of the second part hereof by said second party, said first party agrees to furnish in Minneapolis, Minn., from his dairy farm in Jordan, Minn., a "bottled-on-the-farm" milk conforming to the requirements of "inspected milk" and to the requirements of production, handling and quality herein described, to-wit: Said milk is to be produced in suitable quarters; by workmen free from infectious diseases; from disease-free and tuberculin-tested cows; to contain not over *one hundrod thousand* bacteria to the cubic centimeter when examined at the city laboratory in Minneapolis; to be not over 31 and 19 hours old for morning's and night's milk respectively at noon on the day of delivery; to be free from all visible sediment and from all extraneous matters; to contain the whole unaltered fat and solid content; to be at once strained and started to cool within thirty minutes; to be bottled, sealed and further cooled without delay without any heating and without aeration; to be maintained at a temperature below 51 degrees Fahrenheit; to be sealed with an inviolate seal; to bear on the seal the day of the week when delivered, such day and date being not over 18 and 6 hours respectively, later than when said milk is drawn from the cow:

Said first party agrees to furnish each week to the laboratory aforesaid from one to three samples each in an unbroken package as originally capped and sealed, said supply being for examination and without cost to said examiner or to said second party.

The party of the second part for and in consideration of the performance of the first part by said first party hereby agrees

(1) To inspect said dairy; the methods of production and handling; the finished product through the above mentioned laboratory and to offer such suggestions as may make successful the operations undertaken herein as far as such may be commonly known;

(2) To grant to said first party the use of the following brand or print on the label of each bottle of said milk, viz.: "Inspected Milk, Approved by the Milk Commission of Hennepin County Medical Society."

(3) To recommend such milk according to its quality as "Inspected Milk" to patrons, physicians and the public.

It is further agreed that upon default or failure of said first party to perform his specifications herein that the second party is thereupon empowered to withdraw all and several its co-operation, services, approval, and all unused caps or seals directly or indirectly noting such approval or co-operation.

It is further agreed that failure or default shall be declared only after proper and sufficient notice and hearing.

Said first party agrees upon said withdrawal fully declared to at once cease to use such aforesaid co-operation, grants, recommendations, names, approval, and all caps and seals noting the same.

It is finally agreed that whereas the said second party receives for his co-operation and services no compensation whatsoever he shall likewise not be held liable in any damages or penalty for such withdrawal.

This agreement shall run and be of force for the period of one year from date hereof above.

E. C. Gran.
Geo. D. Haggard,
For the Milk Commission of
the Hennepin County Medical Society.

Signed December 4, 1911.

It was moved and carried that the Society approve the action and commend the Milk Commission.

The Committee on Legal Department reported that membership in the Department is had by the payment of one dollar a year, the privilege of the Department being credit reports on patrons and collections at reduced rates.

Dr. Walter J. Marcley was elected to membership upon his transfer card.

Officers were nominated for 1912. Dr. C. A. Donaldson read a paper on "Rœntgen Diagnosis in Eye Injuries;" Dr. D. F. Wood gave a report of 89 cases of blindness; Dr. W. H. Aurand gave a report of a case of tuberculous meningitis; and Dr. F. A. Dunsmoor reported a case of sterility in a woman who was found to have double organs.

The next meeting will be held Jan. 8th.

C. H. Bradley, M. D., Secretary.

MITCHELL (S. D.) DISTRICT SOCIETY

The annual meeting of the Society was held at Mitchell, S. D., on Dec. 11th, with a good attendance.

Dr. Mortimer Herzog, Director of the State Laboratory, Vermillion, read a paper on "The Interpretation and Value of Practical Laboratory Methods in the Treatment of Disease." Dr. L. C. Mead, Superintendent of the State Hospital for Insane, presented a paper on "Prognosis of Insanity." Dr. B. A. Bobb, of Mitchell, gave "Some Observations at Philadelphia Clinics."

The following were elected officers for the current year: President, Dr. E. F. Reamer, Mitchell; vice-president, Dr. F. W. Fryberg, Mitchell; secretary, Dr. C. S. Bobb, Mitchell; treasurer, Dr. F. S. Kidd, Woonsocket; member of board of censors, Dr. A. H. Hogue, Salem; delegates, Dr. E. W. Jones, Mt. Vernon, and Dr. W. R. Ball, Mitchell.

W. R. Ball, M. D., Secretary.

ST. LOUIS COUNTY SOCIETY

The annual meeting of the Society was held on Dec. 14.

Dr. A. T. Mann, of Minneapolis, presented a paper on "Early Diagnosis of Gall-stones and Their Treatment."

The following officers were elected: President, Dr. J. A. McCuen; first vice-president, Dr. A. Barclay; second vice-president, Dr. O. W. Parker; secretary and treasurer, Dr. A. G. Schulze (re-elected); delegates, Drs. J. B. Weston, T. L. Chapman, C. F. McComb, with Drs. K. M. Knauff, R. Graham, and S. H. Boyer as alternates.

New members elected: Dr. A. T. Laird, Dr. Herman Koller, and Dr. A. L. McDonald.

The following resolution was adopted:

Whereas, Dr. John Jackola was a member of this Society during the past four years, and at all times evinced a keen interest in its deliberations, often enhancing their value by original and creditable contributions of his own; and

Whereas, he always showed a proper regard for the ethics of the medical profession, and both as a practitioner and a man was ever guided by the instincts of a gentleman, whose heart and hand were ever ready to succor the needy and the suffering.

Whereas, his whole life was swayed by noble ambitions, and in all his actions he betrayed a thorough conscientiousness, performing whatever task was allotted to him with a zeal and fervor that perforce aroused admiration; and

Whereas, his tragic passing away has filled the whole community and particularly the medical fraternity with profound regret and sympathy, therefore,

Be it Resolved that we as members of the St. Louis County Medical Society record our deep sense of loss in the death of Dr. John Jackola, which has taken from our midst a life readily endowed with the graces of heart and mind, and be it further

Resolved, that we express our most heartfelt sympathy to his aged mother, and hope that time will allay her suffering to some extent in this great grief. Be it further

Resolved, that a copy of these resolutions be spread on the minutes of this Society, and also a copy be sent to the State Medical Journal, also a copy be presented to the mother of Dr. John Jackola.

O. W. Rowe,
A. H. Schwartz,
Committee.

A. G. Schulze, M. D., Secretary.

NEWS ITEMS

Dr. J. B. Muir, formerly of Hallock, has moved to Avon Park, Florida.

Dr. Wm. Macdonald, recently from Scotland, will locate for practice in Great Falls, Mont.

Dr. M. U. Valiquet, of Rockford, has moved to Ottawa, Ont., where he will continue in practice.

Dr. Thos. A. Lee, of Hibbing, and Miss Vera Knebone, of the same place, were married last month.

The new sanatorium building at Jordan will be completed this winter. The foundation is now in.

Lieutenant Flynn, of the medical corps at Fort Snelling, has left the post, and may go to the Philippines.

Dr. W. H. Lee has moved from Valley City, N. D., to Minneapolis, and has offices at 2431 Blaisdell avenue.

Dr. A. M. Wang has returned to Minneapolis after an absence of several years, and now has offices in the Hulet block.

The new hospital building at Albert Lea is progressing rapidly. The County Board gave the hospital managers $1,000.

Dr. Ida M. Alexander, a graduate of the University of Minnesota, class of '08, has moved from Forman, N. D., to Clarissa, Minn.

Dr. N. S. Bevins has given up practice at McLaughlin, S. D., and after a special course in surgery in Chicago, he will locate elsewhere.

Dr. C. E. Lommen, of Mayville, N. D., has purchased the practice of Dr. E. W. Arnold of Fordville, N. D., and has begun work at that place.

Dr. Arthur W. Ide, of Brainerd, and Florence Decker Millspaugh, daughter of Dr. J. G. Millspaugh, of Little Falls, were married last month.

Dr. Hugh McKinnon, one of the pioneer physicians of Ashland, Wis., died last month at Alexandria, Ont. He practiced twenty-four years in Ashland.

Dr. John W. Maury, of the Mayo staff, of Rochester, has legally adopted the name of John A. Draper, in honor of his mother's family, and in compliance with her wish.

The German Lutherans will conduct a hospital at 712 Fifth street S. E., Minneapolis, remodeling a residence for temporary use, and later putting up a larger building.

The new medical law of North Dakota was held by Judge Templeton, of the Grand Forks district court, to be constitutional, although he expressed some doubt on the point.

Drs. Benson, Portman, and Maintland, of Jackson, have taken charge of the Southern Minnesota Hospital at Jackson, and will make many improvements in the building.

After very heated arguments before the Board of Education of Superior, Wis., the Board voted to require all pupils to be vaccinated or show certificates of recent vaccination.

Holdingford, a small village in Stearns county, has a new hospital. The building has just been completed at a cost of $15,000. Dr. John H. Kaufman is at the head of the hospital.

Dr. Mary P. Eddy, of Beirut, Syria, visited the St. Paul City Hospital last month. Dr. Eddy is devoting her time in Turkey mainly to the establishment of sanatoria for the tuberculous.

Dr. Ray F. Whetstone and his wife, of Minneapolis, were killed in the railroad wreck at Odessa, Minn., last month. Dr. Whetstone was a graduate of Hamline, and 36 years of age.

Dr. T. A. Maher, of Chancellorsville, Iowa, has located at Brewster. Dr. Maher is a graduate of the University of Iowa and spent a year as house physician in the Iowa State Hospital.

Dr. Maude R. Williams, formerly of Devils Lake, N. D., is engaged by the Wisconsin Anti-Tuberculosis Association to give illustrated lectures throughout the state. Her work is receiving very high praise.

Dr. Frederick Leavitt, of St. Paul, will soon open a hospital in the Midway district. It will be a general hospital and non-sectarian. The cost of the hospital building and the home for nurses will be about $25,000.

The wife of Dr. A. C. Moorhead, of Minneapolis, has begun an action for divorce. She asks for $50,000 alimony, alleging that Dr. Moorhead has an income of $125,000 from his medical institutes in Minneapolis, Chicago, and St. Louis.

Dr. T. M. Joyce, of Anamoose, N. D., has taken the practice of Dr. G. R. Fugeino, of Janesville, Minn. The two doctors were classmates at the College of P. & S., at Chicago. Dr. Fugeino will specialize in diseases of the eye, ear, nose, and throat, and locate elsewhere.

Dr. C. J. Ringnell, of Minneapolis, has returned from an extended European trip. Dr. Ringnell visited clinics in London, Paris, and Berlin, and the Finsen Institute in Copenhagen, which is maintained by the government and treats cases of lupus from all parts of the world, and uniformly successfully.

Dr. Arthur T. Mann, of Minneapolis, was re-elected secretary-treasurer of the Western Surgical Association, which held its annual meeting at St. Louis last month. Dr. Mann also introduced a strong resolution against fee-splitting, and the Association is pledged to break up the practice among its own members.

The Watertown District Society of South Dakota met in Watertown in December. Officers were elected for the ensuing year as follows: President, Dr. H. M. Freeburg, Watertown; vice-president, Dr. J. B. Vaughn, Castlewood; secretary-treasurer, Dr. S. B. Dickinson, Watertown; delegate, Dr. R. S. Hart, Hazel.

It is reported that the parochial schools of St. Paul will ask the City Board of Education to permit Dr. Meyerding, the Board's medical inspector, to inspect all parochial schools. This would be an admirable arrangement, asked for by men who have both sense and authority, as well as a desire to protect the health of their school children.

The new McKennan Hospital at Sioux Falls, S. D., was dedicated last month. Bishop O'Gorman and Dr. Cottam were among the speakers. The building cost $100,000 and will accommodate 85 patients. The hospital grew out of a gift of $25,000 made by the late Helen G. McKennan, of Sioux Falls. The building is a large four-story structure and is thoroughly modern.

Dr. C. H. Mayo, of Rochester, was operated on for appendicitis in New York City on December 16th, and later for gall-stones. The operations were done by Dr. J. A. Blake in the Presbyterian Hospital. Dr. Mayo's condition became alarming enough to call his brother, Dr. Wm. J. Mayo, to his bedside. As we go to press the reports from Dr. Mayo point to a speedy recovery.

About twenty physicians attended the December meeting of the Northwestern District Medical Society of North Dakota, which met at Minot. Dr. A. J. McCannel, of Minot, read a paper on "Drinking Water in Railway Trains," and Dr. O. A. Aaker, of Velva, presented one on "Diabetes." The session was followed by a banquet.

Superior is the first city in Wisconsin to build a tuberculosis sanitarium under the new Wisconsin law. The sanitarium will soon open. Physicians of the county will be permitted to send their private patients to the institution and care for them while there. Their board will be very moderate.

Dr. John Charles Adams, of Lake City, died in St. Paul on December 19th, at the age of 80 years. Dr. Adams was born in Ireland, but came to this country at the age of 10. He graduated from the Medical Department of the University of Louisiana in '57 and served as surgeon in the Civil War. He came to Lake City in 1868 as rector of St. Mark's Episcopal Church, and began the practice of medicine in 1872. He was greatly beloved in Wabasha County.

The Scott County Society of Iowa has asked the Iowa State Board of Medical Examiners to revoke the license of Dr. M. P. Brown, who is the only graduate physician connected with the Chiropractic School of Medicine in Marshalltown. The society points out the fact that the only deaths in a recent epidemic of diphtheria in that city were of two children treated by Dr. Brown by Chiropractic methods, and that a woman treated by him for a fractured femur is a helpless cripple.

Fifteen graduates of the Jefferson Medical College of Philadelphia, practicing in the Twin Cities, attended an informal dinner at the Hotel Magee Thursday evening, December 14th. The object of the dinner was to form the Jefferson Medical College Association of Minnesota, a subsidiary organization to the Jefferson Medical College Alumni, a national organization. Dr. S. D. Flagg, St. Paul, '59, was elected president; Dr. W. D. Kelly, St. Paul, '87, vice-president; Dr. R. J. Hill, Minneapolis, '75, secretary. The object of the Association is social, but it is contemplated introducing the reading of short papers on work done by its members at its future meetings which will probably be held May and December, alternately in St. Paul and Minneapolis. The secretary, Dr. Hill, will be very glad to hear from any Jefferson graduates resident in the State of Minnesota, and the Association is very anxious to enlist Jefferson men in this association. The next meeting will be in Minneapolis some time in May, 1912. The following doctors were present: S. D. Flagg, R. J. Hill, Wm. Dinwoodie, St. Paul, '77; J. C. Markoe, St. Paul, '81; J. Warren Little, Minneapolis, '80; W. D. Kelly, St. Paul, '87; A. J. Kistler, Minneapolis, '85; E. W. McCord, St. Paul, '90; J. S. White, St. Paul, '93; E. F. Murphy, St. Paul, '04; E. K. Eggen, St. Paul, '09; R. R. Cramer, Minneapolis, '09; Dr. Thompson, Minneapolis, '11.

PRACTICE FOR SALE

General practice in a Minnesota city of over 6,000 population, two railroads, prosperous agricultural community. Offices well located; equipment worth over $1,000. I am leaving to enter special field and will sell for price of equipment. Doing about $300 a month. Address C. A., care of this office.

PART OF A MINNEAPOLIS OFFICE FOR RENT

After January 15th I will rent to a general practitioner office room for certain hours; modern downtown office. Address L. M., care of this office.

FOR SALE

An unopposed practice in a good live village in southern Minnesota. Nearest competition 13 miles away. I have been located here 11 years and have a good practice. Expect to move to a larger town. $800 will make the deal. Address P. C., care of this office.

FOR SALE

A 5-passenger 1911 Ford automobile used only 3 months, cost $900 without extra equipments, will be sold at half price; party leaving city. This price includes glass front, speedometer and good top. Everything is in the best of condition. Address L. S. F., care of this office.

LOCATION WANTED

In North Dakota or Minnesota a practice of not less than $3,500 is wanted by young, capable physician, single, with first-class references and experience. Will consider partnership or assistantship to older retiring physician or will assume practice of physician about to leave for a year with partnership view. No investment at present. Kindly give full particulars. Address H. C., care of this office.

APPARATUS AND OFFICE FIXTURES FOR SALE

On account of dissolution of office partnership we have for sale one 16-in. Western X-Ray Coil, tubes, tube-shield, stands, fluoroscope, high-frequency resonator—in fact everything complete for *x*-ray work and high-frequency treatment. Cost, over $550.00; for sale for $275.00. One Nelson vibrator, flexible shaft and fittings, wall bracket, etc. Cost, over $45.00; for sale for $25.00. Water centrifuge, Thoma blood-count apparatus; office furniture, etc. We guarantee everything in good working order; can be seen at our office; Drs. Leland & Murphy, 1525 E. Franklin Ave., Minneapolis.

Doctor: If you want practical post-graduate work during fine season in the delightful city, write for particulars. New Orleans Polyclinic, P. O. Box 797, Postgraduate Medical Dept., Tulane University of La.

PUBLISHER'S DEPARTMENT

THE EITEL HOSPITAL

We are sure our readers who are acquainted with Dr. Geo. G. Eitel, of Minneapolis, even in a small degree, will be glad to hear that the dream of his life, at least his life as a surgeon, is fulfilled in the completion and occupancy of the new Eitel Hospital.

The picture of the building in our advertising columns is wholly inadequate to show how handsome the structure really is, but it is the only picture yet available.

When we say that it is a hospital of about 100 beds, and is complete in every detail, our readers understand what Dr. Eitel has accomplished in building, largely for his own use, such a structure.

The panoramic views from the rooms are beautiful indeed. On the left, way over Loring Park, is St. Mark's new building, one of the handsomest church edifices in America, and on the right is the new Catholic Pro-Cathedral, now under cover, also a noble piece of church architecture; and way beyond in the background are the hills that enclose the valley of the Mississippi river.

The interior of the building is also very pleasing, and the "hospital atmosphere" will never be a plague to the patients, as is that of most hospitals. Dr. Eitel's home will hereafter be in a detached apartment of the building, and the presence of the chief surgeon at practically all hours of the day and night will prove a blessing to many patients and their relatives.

Several small wards make it possible to provide for patients unable to pay for private rooms quarters almost equal to private rooms, and this is a feature that will be greatly appreciated.

We wish the Eitel Hospital a prosperous and useful career, accompanied by just monetary returns and professional honor for its founder.

ANGIER'S PETROLEUM EMULSION

Dr. White, of the University of Dublin, made careful detailed studies as to the action of petroleum upon the various micro-organisms. His investigations proved that inasmuch as petroleum offers no food for bacteria they cannot thrive in this medium. By an elaborate series of laboratory experiments Dr. White found that petroleum emulsion (Angier's) inhibited alcoholic, lactic and butyric fermentation, as well as the growth of putrefactive bacteria, which have their natural habitat in the intestinal canal.

This explains the clinical fact that this excellent preparation relieves the symptoms due to the byproducts of the various fermentations, and shows why auto-intoxication, resulting from the growth of putrefactive bacteria and their toxins in the intestines, is not possible when it is administered.

In much the same line are reports made by Dr. W. E. Fothergill, Director of the Clinical Laboratory, Manchester, England. In a recent publication he says: "We kept complete notes in 34 cases of infantile diarrhea. One of the children died after various treatments had been tried. In two cases salol was substituted at the end of the week for petroleum, and in the remaining 31 cases, recovery occurred rapidly and completely without any treatment beyond the administration of the petroleum emulsion (Angier's). We did not notice any derangement of the stomach in the cases so treated, indeed, the vomiting ceased, as a rule, almost before the diarrhea was checked. The motions began to be less frequent after two or three doses, and rapidly resumed their normal smell, color and consistence. It was further obvious that the treatment in some way favored recovery from the bronchial catarrh which accompanied the diarrhea in a large proportion of the cases."

MORE FORDS—MORE FORDS

The types made us say in our last issue 7,500 Fords will be the output for the Ford factories for 1912. If we had added "for two or three Northwestern states," we should have been nearer the mark. The total output will be 75,000 Fords, and still the man who puts off his order till midsummer may not be able to get a Ford. They are popular with all classes, and they "go fast." This is a warning of value to the man who wants a Ford.

THE POTTENGER SANATORIUM

Dr. Pottenger, who conducts a sanatorium at Monrovia, a fifteen-minute ride from Los Angeles, California, has made a national reputation in his specialty of lung and throat diseases, especially tuberculosis; and patients who have been sent to Dr. Pottenger from the Northwest give, we are told by physicians, unstinted praise to the sanatorium and its managers.

It is a pleasure to record such testimony to a medical man and his work for a class of patients who have been too long considered hopeless.

GLYCO-HEROIN (SMITH)

The exceedingly favorable and long-continued sentiment on the part of the medical profession toward Glyco-Heroin (Smith) is proof of its therapeutic excellence.

Glyco-Heroin (Smith) is decidedly preferable to preparations containing codeine or morphine, by reason of the fact that it does not produce narcotism, constipation, gastric disturbance, or habituation, even though its administration be protracted.

The benefiting manner in which its heroin content is combined with henbane, ammonia hypophosphite, balsam tolu, and white pine bark, renders Glyco-Heroin (Smith) efficacious in many diseases of the air-passages, notably those attended with cough.

In acute and chronic inflammatory affections of the respiratory system, especially those characterized by cough, Glyco-Heroin (Smith) is vastly superior to other agents of its class, in that its anodyne and antispasmodic influence is more pronounced, and its action always more prompt and uniform.

Every possible precaution is taken to restrict the employment of Glyco-Heroin (Smith) to ethical channels, exclusively.

DOUBLE ELIMINATION

Where the body is saturated with the waste-products of metabolism it is an important part of good medical treatment that these useless, harmful substances be thoroughly eliminated. The urinary system is a channel of evacuation, as well as the intestinal tract, and to free the system of toxic waste-products through both these channels is a logical procedure.

Defective elimination readily becomes a chronic condition since the toxemic patient lacks that initiative which is necessary to active physical exercise. A rational therapeutic treatment must be instituted while proper hygienic conditions are being re-established. In these cases, Cystogen-Aperient performs a double service by stimulating to normal function, and by disinfecting the urinary and intestinal tracts; Cystogen-Aperient (granular effervescent salt) combines the tonic and laxative properties of sodium phosphate and tartrate with the urinary-antiseptic and solvent action of Cystogen ($C_6H_{12}N_4$).

MEDINAL

In the "Muenchener Med. Wochenschr." Dr. E. Steinitz, writing from Prof. Rostoski's Division of the Stadtkrankenhaus Friedrichstadt, in Dresden (Germany), confirms his previously reported favorable results with Medinal (mono-sodium-salt of the diethyl-barbituric acid). The author's first article appeared in: "Therapie der Gegenwart," July, 1908. He particularly emphasizes the prompt and rarely failing efficiency of Medinal when administered per rectum, and recommends for this purpose the use of Medinal-suppositories.

Surprisingly good results were obtained with Medinal in this form in asthma bronchiale ad stenocardia, the nocturnal attacks being shortened and frequently entirely forestalled by its use, although this particular action of Medinal seemed to decrease after long and continuous administration and to necessitate gradual increase of the doses. Generally, Medinal-suppositories will be indicated wherever small doses are desired, and stomachal hypersensitiveness is to be reckoned with. The combination of Medinal with morphine did not only prove useful in certain cases, but, according to extensive experiments of an American physician, Medinal appears to effectually counteract the disagreeable side-effects of morphine. Neither from his own nor from the observation of others does the author feel justified in drawing definite conclusions regarding Medinal when administered subcutaneously and recommends further experiments with 15 grains in a 10 per cent solution. The author then reviews a number of other contributions to the therapy of Medinal, the great majority of which concur in recognizing the superiority of Medinal over diethyl-barbituric acid. Munck, who has administered it, mostly subcutaneously, in conditions of excitement of the insane, dissents somewhat, but admits the more agreeable taste of the Medinal solutions. Only when placed directly on the tongue, Medinal tastes strongly bitter, owing to its far greater solubility as compared with the diethyl-barbituric acid. The author recommends that hospitals and sanitaria keep stock solutions of Medinal (56 grains in ten ounces of water, one dessert spoon of which contains 1½ grains). Addition of more water, or wine, flavors, morphine, codeine, etc., if desired, should be made to the individual doses, not to the stock-solution, to avoid precipitates.

The author has also experimented with the mono-sodium salt of the dipropyl-barbituric acid (solubility in water 1:3), which produces sleep on an average in ten minutes, its other characteristics being identical with those of Medinal. It is, however, not possible, as was hoped, to obtain permanent satisfactory hypnotic action with this salt by smaller doses than those necessary of Medinal.

The author does not attribute practical therapeutic importance to either the dipropyl-barbituric acid or its mono-sodium-salt.

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rapidly respond to the almost specific action of this ideal combination of the chloro-phosphate of lime and creosote. IT SOLVES THE PROBLEM OF SUCCESSFUL CREOSOTE THERAPY. No nausea, no gastric irritation, no unpleasant effect—simply gratifying control of respiratory symptoms and notable improvement in general bodily nutrition.
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SYMPOSIUM ON CARCINOMA OF THE ALIMENTARY TRACT

CARCINOMA OF THE LIP, MOUTH, AND PHARYNX*

By E. H. Beckman, M. D.
Junior Surgeon to St. Mary's Hospital
ROCHESTER, MINNESOTA

There are three important factors which contribute to the cure of carcinoma by present-day surgery: (1) the opportunity for an early diagnosis; (2) slight tendency for the growth to form metastases in vital and deep-seated parts of the body; and (3) accessibility for removal of the lymphatics first involved after the disease has progressed beyond the primary focus.

If the foregoing statements are true, then a carcinoma on the lips, in the mouth, or in the pharynx is ideally situated for surgical cure.

Carcinomata in this region are most favorable for early diagnosis because they are situated upon the surface where they can be seen. They can be palpated nearly always, and a section for microscopic examination can be obtained with no risk to the patient. In addition, the patient is conscious of their presence in the early stages of the disease on account of symptoms or the presence of a tumor.

There are few diseases in which an early diagnosis is more essential, on account of the appalling danger and the hopeless condition of these patients in the later stages of the disease. "The public should be better instructed in the hygiene of the mouth and teeth, and should be taught the importance of seeking medical advice for any chronic lesion in this region. Dentists cannot be too conscious of the power they possess in preventing death from cancer, and of the awful responsibility they incur for overlooking precancerous conditions or early malignant disease." (Roughton.)[1]

Butlin[2] calls attention to the fatal tendency of the physician to treat early cancer as syphilis, or some less serious affection of the mouth. The "expectant" treatment of these cases is to take away the patient's best chance for complete recovery.

A careful study of 4,500 cases of cancer of the head and neck traced in literature for Crile[3] showed that in less than 1 per cent secondary cancer foci have been found in distant organs and tissues. That is to say, in cancer of the head and neck, death almost always occurs by local and regional development of the disease. The collar of lymphatics in the neck forms a picket-line through which cancer is rarely allowed to pass. Every part of this lymphatic chain which surrounds the neck is easily accessible and can be removed with impunity.

Since Crile advocated his block dissection, it has been learned that many muscles, nerves, and blood-vessels of the neck, formerly considered of importance, may be removed with comparative safety to the patient and with but little deformity. One or both sternomastoid muscles can be removed with safety and very little inconvenience to the patient. The digastric, the omohyoid, the sternohyoid, and the sternothyroid muscles are all compensated for by other muscles, and can be removed when necessary.

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* Read at the 43d annual meeting of the Minnesota State Medical Association at St. Paul, Oct. 5 and 6, 1911.

The external and internal jugular veins, on one or both sides, may be removed the entire length of the neck with safety. The collateral venous circulation is abundant and easily compensates for their loss. One or both external carotid arteries can be ligated, about the only risk being that from an embolism. The ligation of the internal or common carotid artery causes a considerable mortality on account of cerebral softening. Unilateral excision of the hypoglossal, the phrenic, or the pneumogastric nerves is by no means fatal, but injury to any of these nerves should rarely occur, even in the most extensive operations. In addition, patients do not seem to suffer inconvenience from the most extensive removal of the lymphatics of the neck.

Therefore, the surgical cure of carcinomata of the lips, mouth, and pharynx resolves itself into a physiologic and anatomic study, physiologic in the sense that we must know the group or groups of lymphatics into which the various areas of this portion of the body drain, and anatomic so that we may be able to remove them successfully along with the original growth.

The lymphatics have been studied so carefully by Küttner, Poirier, and Cuneo[4] that the groups of glands into which the different portions of the head and face drain is quite definitely known. These glands, so far as they concern the cure of cancer of the lips, mouth, and pharynx, may be divided into three groups:

1. The submental glands, lying in a triangle bounded by the anterior bellies of the digastric muscles and the hyoid bone. This group of glands receive vessels from the integument of the chin, from the central portion of the lower lip, from the corresponding portion of the alveolar border of the mandible, from the floor of the mouth, and, finally, from the tip of the tongue.

2. The submaxillary group. This group, consisting of five or six glands (often estimated much higher), lies in the digastric triangle, and receives afferents from the lower part of the nose, the cheeks, the upper lip, the outer part of the lower lip, almost the whole of the gums, and the anterior third of the lateral border of the tongue.

3. The deep cervical group. A group consisting of from 15 to 30 glands extending from the tip of the mastoid process and the posterior belly of the digastric muscle to the juncture of the internal jugular and subclavian veins, some of the glands being in front, but the larger number behind the vein. This is the most important group of glands in the neck because it forms the second glandular relay for all that area of the body which drains into the submental and submaxillary glands, and, in addition, receives the majority of the lymphatics of the tongue, palate, and pharynx.

The lymphatic vessels, which drain the midportion of the lower lip, end in the submental glands. The vessels which drain the upper lip, the cheek, the lateral portions of the lower lip, and the entire alveolar area, end in the submaxillary glands. The vessels from the lower lip anastomose with each other, so that, in case of cancers of the lower lip, the submental and the submaxillary glands of both sides should be regarded as liable to become infected. Therefore, in case of a cancer situated on the upper lip, the lower lip, the cheek, or the alveolar process, the entire submental and submaxillary area, as well as the primary growth, should be removed. It should be remembered that, while the lymph has regular channels through which it flows, in case these regular channels are blocked on account of carcinomatous growths in the glands or for any other reason, the circulation is then taken up by the collaterals, the same as in the blood-stream, and the stream may then flow in any direction. In our series of cases we have not been able to establish clinically an infection of the submaxillary region on the opposite side when the primary cancer was situated away from the midline of the face, except in cases where the regular channels have been blocked by carcinomata, as mentioned above.

The submaxillary and submental glands are the first glandular relay-station for the area mentioned, but as soon as cancer passes this station it then goes into the deep jugular group. The afferent lymphatics from the tip of the tongue drain into two main channels, one of them emptying into the submental glands and the other into the deep jugular chain near the point where the omohyoid muscle crosses the internal jugular vein.

The vessels which drain the tip and the anterior one-third of the lateral margins of the tongue end partly in the submental, the submaxillary, and in the deep jugular chain. The remainder of the tongue, consisting of the middle portion of its body and the base, as well as the pharynx and tonsil, empties immediately into the deep jugular chain. Therefore, when carcinoma is situated anywhere upon the tongue, even at the apex, it should be remembered that the submental, the submaxillary, and also the deep cervical chain are the glands which may become infected.

The main lymphatics of the tongue anastomose with each other freely, especially those at the base, although, clinically, one often sees a case of carcinoma of the tongue situated upon one side which has been cured by excision of one-half of the tongue and the glands upon that side. Since the lymphatics and the areas that they drain are so well known, our duty as surgeons seems clear. I speak only of surgeons, because, up to the present time, no other method of cure for carcinoma than by surgical means has been discovered.

When a patient with carcinoma of this region comes for examination, the location and extent of the primary growth and the lymphatic area into which it drains, should be carefully studied, and an operation planned to remove this entire lymphatic area at the same time or before the original growth is attacked, whether the glands are involved or not. Many of our failures in the past have been due to removing not enough glands, instead of removing too many, and because these patients do not present themselves for operation at an earlier stage.

In the past six years we have operated upon 210 cases of carcinomata of the lips at St. Mary's hospital. Two hundred of these had the submaxillary and submental glands removed, but in only 52 did the patient come for operation within six months of the beginning of the disease. In spite of this fact, in 104 cases the glands removed showed that neither side was involved by carcinoma. The same difficulty has been encountered in our cases of carcinoma of the tongue, cheek, and mouth. A large proportion of the patients presented themselves at so late a period in the disease that little hope remained of permanent cure.

We have nothing new to suggest in the way of operation, except that we believe more of the extensive dissections of the neck, called the "block dissection," should be done at an early period in the disease before glandular involvement has taken place. Crile has four times as many three-year cures in carcinoma of the head and neck since he adopted this procedure. The operation is an extensive one and looks extremely formidable, but in our series of cases it has not proven to be as dangerous as at first thought. During the past three years we have performed 25 "block dissections" of the neck for malignant disease, two of them being on both sides of the neck, without an operative mortality. Sixteen of these patients were over 50 years of age, and six of them were over 60. When it is remembered that the patient already has a disease which, sooner or later, will be fatal, it is only justice to the patient to give him the opportunity of cure which is held out by one of these more extensive operations.

If, in making one of these "block dissections," it is necessary to enter the mouth, the mortality will undoubtedly be high on account of the infection carried into the deep tissues of the neck from the mouth. So that it seems preferable, when possible, to divide the operation into two stages, doing the "block dissection" first, and the extirpation of the original cancer at a later period. When a carcinoma situated upon the mucous surface cannot be excised *in toto* with a scalpel, the actual cautery is the most efficient method of removing it, because the heat penetrates beyond the original growth and prevents a transplantation of carcinoma cells upon the denuded surface.

Pathologists are beginning to depend more upon the character of the cell in carcinoma than upon the fact that the cancer cells have penetrated the basement membrane, so that we may hope for an earlier diagnosis of cancer from our pathologists. Better results in the treatment of carcinoma of the lips, mouth, and pharynx seem to lie in a realization of the hope for an earlier diagnosis and a more extensive removal of the lymphatic glands into which the area of the cancer drains.

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FOR DISCUSSION SEE PAGE 37.

ESOPHAGEAL OBSTRUCTIONS, WITH ESPECIAL REFERENCE TO CARCINOMA*

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A careful review of the literature and work being done in this country five years ago revealed the fact that the esophagus was receiving but little attention from either physician or surgeon. Our literature indicated a far greater comprehension of esophageal disease than existed in practice. The text-book articles were compilations of the contributions of pathologists, radiographers, laryngologists, and surgeons who were interested in some particular esophageal disease or technical method. Few, if any, were prepared to meet the patients suffering from dysphagia with a general training in the methods of esophageal diagnosis and treatment.

Considerable stress was laid on the value of the esophagoscope, although it was made use of only by the laryngologists. Patients suffering from dysphagia went to the consulting physician or surgeon. A definite diagnosis in a patient under forty years of age was only rarely made unless there was some known etiological factor. Dysphagia in a patient over forty years of age was attributed to carcinoma until time ruled out malignancy. Patients outliving the malignant period drifted from family physician to consultant, from consultant to consultant, until inanition forced a gastrostomy, or death resulted from some intercurrent disease. During the last few years there has been a growing interest in the subject, and the benign lesions of the esophagus are now more promptly recognized and intelligently treated.

It is from the standpoint of elimination, rather than that of positive interest in carcinoma of the esophagus, that I am presenting this paper.

We can offer the patient suffering from carcinoma but relatively little, either in the way of palliation or cure; however, we can appreciably reduce the reported mortality from carcinoma of the esophagus by recognizing the benign lesions that may threaten life before the two-year limit rules out malignancy. Of the last one hundred cases coming under my observation with a diagnosis of carcinoma, 15 per cent had benign curable lesions.

The fortieth year separates esophageal cases into two groups: In the first carcinoma is rare, in the second it is by far the most frequent disease. After the thirty-fifth year, carcinoma must be considered as a possible complication in all benign lesions of the esophagus. The possibility of a benign lesion must be considered in all cases of dysphagia occurring after the fortieth year until a diagnosis of malignancy is absolutely established. The most common benign causes of dysphagia after the fortieth year are pressure from without the esophagus, diffuse dilatation with cardiospasm, cicatricial stenosis of unknown origin, spasm at the introitus, and spasm at the cardia associated with general neuroses or of reflex origin. Of less frequent occurrence are diverticula, syphilis, benign tumors, and a peculiar rigidity of the esophageal wall at the introitus.

It is outside the scope of this paper to discuss the causes of dysphagia due to pressure on the esophagus from without. Diffuse dilatation rarely, but occasionally, threatens life before the two-year limit excludes carcinoma. The exclusion of carcinoma in the group of cases that may be classed under the term of cicatricial stenosis of unknown origin is most difficult. It must be remembered that a carcinoma secondary to a benign lesion is not extremely rare, and that a cicatricial stenosis from traumatism or an inflammatory process in youth may not contract sufficiently to cause dysphagia until late in life.

Too much stress cannot be placed on the subjective history and general physical examination, but a safe diagnosis must rest, in the majority of cases, on accurate technical findings. A diagnosis should be established before metastatic tumors, cachexia, etc., are in evidence. The rational process in arriving at a diagnosis is, first, to eliminate down to organic stricture; second, to determine the character of the esophageal wall at the seat of the narrowing. Early in the history of dysphagia it may be impossible even to locate the site of the lesion. As soon as the lumen of the esophagus becomes constricted, the method of sounding described below will establish the existence of an organic stricture. For the absolute differentiation of benign and malignant strictures, especially early in the history, we are largely dependent upon the esophagoscope. Most patients come under the observation of the consultant later in the history, when the diagnosis can be determined, in many instances, by careful sounding. The esophagoscope, olive bougie, and radiograph are the valuable technical methods of examination. The radiograph is of extreme importance in eliminating mediastinal disease. It gives us a beautiful, graphic record in cases of diffuse dilatation and diverticula of the esophagus, but not much direct aid in the diagnosis of carcinoma.

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The olive bougie, passed without a guide, is a dangerous instrument. Only sufficient force barely to detect obstruction is permissible in its introduction. Any attempt to crowd an unguided sound past an obstruction may result in a perforation of the esophageal wall. A traumatic perforation of the esophagus almost invariably results in the death of the patient. On previous occasions I have called the attention of this Association to the use of silk thread as a guide in introducing esophageal instruments. The number of reported failures in its introduction leads me to discuss it more in detail. A safety-pin is inserted through the hole of a spool of button-hole twist in such a way as to make a reel. The thread is now unwound from the spool and marked with black ink at intervals of a yard, and then rewound. A few inches of the silk thread are coiled, moistened, and placed on the back of the patient's tongue, and a swallow of water taken. It will often avoid delay for the physician to see the silk started while the patient is in the office. The patient is instructed to swallow two or three yards before bedtime, and an equal amount at the rate of a foot an hour the following forenoon. The first portion forms a snarl in the stomach, which passes out into the intestine during the night. The second portion should be taken slowly enough to prevent snarling. At three o'clock in the afternoon the thread has passed sufficiently far, in most instances, to prevent its withdrawal on being pulled taut. Difficulty may arise from the thread not passing the stricture, or from snarling of the portion in the esophagus. In the latter case the patient must go on swallowing the thread slowly so as to allow intestinal peristalsis to take up the slack.

If the stricture is very small, two or three feet of thread should be allowed to rest in the esophagus for several hours before attempting to swallow more. In the most difficult cases the thread may be regurgitated many times, the patient become discouraged, and much tact and urging on the part of the physician be required. Braided silk does not readily pass a stricture. A very fine silk, used in stitching arteries, will pass small strictures in which the button-hole silk fails. It is not strong enough to serve as a guide, but will slowly draw a larger size of silk through the stricture. I have had only three patients who failed to swallow the silk. One was insane and would not co-operate in any attempt at relief; the other two had very long, tortuous, typhoid strictures. In these two cases I injected the thread through the strictures with a syringe, having a nozzle which fitted the funnel at the upper end of the stricture. This was done through an esophagoscope with the patient under an anesthetic. A detailed description of the technic will be reported in a paper on the treatment of cicatricial stenosis.

For diagnostic purposes the ordinary olive and whalebone staff is used. The olives are drilled from the tip to one side of the base. A self-threading needle is very convenient for passing the thread through the olives. Variously shaped, fenestrated olives are used for obtaining shreds of tissue for microscopic examination. A stomach-tube, stiffened with a whalebone staff and tipped with a perforated olive, is of much service in obtaining the esophageal or stomach contents. The value of the thread as a guide may be summed up by stating that it enables us to recognize and avoid pocketing of the tip of the instrument, and, by avoiding pocketing, safely to pass strictures and to estimate the rigidity of the tissues and the diameter of the esophagus at the seat of narrowing.

Benign cicatricial stenoses are passed with difficulty, do not dilate easily, and only rarely bleed unless dilated. Carcinomatous strictures, as a rule, are easily passed and dilated, and the passage of the sound almost invariably causes some hemorrhage. Dilating a benign cicatricial stricture to 30 F. invariably markedly relieves the dysphagia. I do not think I have ever met an exception to this rule. Dilating a carcinomatous stricture to 30 F. may markedly relieve a dysphagia, but frequently does not. Benign cicatricial strictures, as a rule, are dilated to 30 F. with difficulty at the first sitting. Carcinomatous strictures, with few exceptions, can be easily dilated to 35 or 40 F. In cases having diffuse dilatation of the esophagus associated with cardiospasm, more or less resistance to the passage of an unguided sound is encountered at the hiatus esophagi in 60 per cent of the cases, while, with few exceptions, little or no resistance is encountered if the sound is passed on a taut thread. With variously shaped fenestrated sounds passed on a silk thread, tissues can be obtained for microscopic examination in 35 per cent of the cases of carcinoma. Just how far this method can be carried safely I am not now prepared to say and hesitate to recommend its use. In nearly one-fourth of my series the stomach was either primarily or secondarily involved. In this group of cases the analysis of the gastric contents obtained by passing the tube on a thread, has frequently been sufficient to confirm an otherwise questionable diagnosis.

While I have left the subject of esophagoscopy to the last, the order of procedure in the technical examination should rest, to a considerable extent, on the clinical history and the location of the lesion. It has been my practice to first introduce a 35 F. olive, and, if obstruction is encountered in the upper two-thirds of the esophagus, to withdraw the sound and make an esophagoscopic examination without further manipulation if a carcinoma is suspected. If the stricture has been passed, it is advisable to wait a few days before doing an esophagoscopy, as the trauma and the hemorrhage may make it unsatisfactory. If a benign lesion is suspected and in all cases requiring a general anesthetic, I prefer to obtain as much information as possible before resorting to esophagoscopy. Esophagoscopy without an anesthetic is, as a rule, satisfactory in cases having lesions located in the upper two-thirds of the esophagus. If the lesion is located in the upper two inches of the esophagus, precaution should be taken to bring the strictured portion into view without traumatism from the beak of the instrument. Lower in the esophagus this difficulty is not encountered. In case of hemorrhage, or if the mucous membrane at the upper portion of the stricture is not involved, a more satisfactory view can be obtained by first passing the instrument completely through, then withdrawing it to the lower margin of the stricture, carefully mopping or washing the blood away with a small stream of water. I have succeeded, with few exceptions, in obtaining specimens for histologic examination in cases of carcinoma located in the upper two-thirds of the esophagus.

Esophagoscopic examination without an anesthetic below the level of the diaphragm is much less satisfactory. I have succeeded in obtaining sections for histologic examination by direct inspection in only 35 per cent of the carcinomas at the cardia. Probably with an anesthetic and a more prolonged examination, a higher percentage of positive results could be obtained.

A good many cases come under observation with symptoms of cardiac obstruction from the fourth to the sixth month after the development of dysphagia in which the clinical history, age of the patient, results of sounding, etc., all indicate carcinoma. I do not believe it is justifiable to routinely esophagoscope these cases under an anesthetic.

The importance of a definitely established diagnosis must be taken into consideration. In some instances business affairs make it desirable at the earliest possible time. Much more frequently an opinion can be safely withheld until more definite evidence develops. In cases of malignancy the patient and his friends are generally happier without an established diagnosis. Before inanition threatens the life of the patient, no pains should be spared in establishing a definite diagnosis. If this is impossible, a gastrostomy should be done.

The treatment of carcinoma of the esophagus can be dismissed with a few words. An esophagectomy with a gastrostomy may be indicated in a few cases of carcinoma of the cervical portion of the esophagus in which the diagnosis is made early in the history. I have been on the lookout for favorable cases for operation, but have been unfortunate in having patients come too late. Surgery of the lower two-thirds of the esophagus is, as yet, experimental.

Dilatation of the stricture in many instances gives marked relief. I have seen a number of patients completely relieved of dysphagia, and regain normal weight and maintain it for several months with an occasional dilatation. It is almost impossible to compile statistics in such a way as to make them of much value, but it is my impression that dilatation as a whole gives more relief than gastrostomy. Dilatation with a guided instrument is relatively free from danger.

If one or two dilatations do not give marked relief, or a recurrence of dysphagia occurs within a week, it is hardly worth while to attempt it further. Dilatation is more apt to prove satisfactory in carcinoma of the middle third of the esophagus. A gastrostomy should always be done if there is doubt about the diagnosis when the patient is beginning to lose sufficient strength to make an operation hazardous. If the diagnosis is well established, the question of gastrostomy should be left to the decision of the patient and his friends. It only adds an unsatisfactory period to the life of the patient, and in the end both patient and family express themselves as being dissatisfied.

FOR DISCUSSION SEE PAGE 37.

CARCINOMA OF THE GASTRO-INTESTINAL TRACT*

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From October 1, 1897, to November 1, 1911, 1,264 cases of carcinomata of the gastro-intestinal tract were operated on at St. Mary's Hospital. Of this number, 863 involved the stomach, 14 the small intestine, 219 the large intestine, and 168 the rectum. These statistics show that carcinomata of the stomach form more than two-thirds of all the carcinomata of the gastro-intestinal tract. Carcinomata of the large intestine come next in relative order, and the rectum follows with three-fourths as many as the colon.

In the total number (863) of carcinomata of the stomach, it was possible to do the radical operation in only 307, or 35.5 per cent, of the cases. In the group of carcinomatas of the small intestine, 5, or 35.7 per cent, of the patients were submitted to radical operation; in carcinomata of the large intestine and rectum, nearly three-fourths of the patients were operated on radically.

These data would indicate that the stomach is the organ most frequently affected with cancer, and that only one-third of the patients submitted to operation are operated on with any prospect of cure. The remainder are subjected to palliative operations, such as gastrojejunostomy and gastrostomy, or to explorations.

The number of carcinomata of the small intestine is curiously small in comparison with the associated organs. The small intestine is the most primitive part of the gastro-intestinal tract, and it is reasonable to suppose that its longer heredity makes it more resistant to malignancy than the stomach and large intestine, which organs were added later in the course of development.

In studying the question of permanent cures following resections of the gastro-intestinal tract, we find that, of the total number of cases of cancer of the stomach submitted to radical operation, more than 23 per cent of the patients who recovered from the operation and whose present condition has been ascertained, are alive and well over five years. Fifty per cent of patients submitted to radical operation for cancer of the large intestine, and 30 per cent with cancer of the rectum who recovered from operation and whom we have been able to trace, are alive and well over five years. Every case dying within the five-year period is counted as a death from the disease, which is not fair to the statistics, as the normal death-rate during the five-year period would approximate 8 per cent.

Taken as a whole, these statistics indicate that carcinomata of the gastro-intestinal tract which are sufficiently localized to justify radical operation, give results fully as good as carcinomata in other parts of the body. The pessimism of the medical profession regarding malignant disease of the gastro-intestinal tract is not justified by the facts. It is the failure to make diagnosis during the stage when the disease is still localized, and not any peculiar malignant tendencies of the process itself, which accounts for the fatal character of cancer in this region.

The most important question in connection with the radical cure of carcinomata concerns the lymphatics, and the proof of this assertion cannot be better shown than in the results as to permanent cure after resection of the various organs of the gastro-intestinal tract. The stomach is highly supplied with lymphatics and gives the smallest percentage of radical cures. The large intestine, having the least lymphatics, gives the highest percentage of radical cures, and the rectum, with a moderate supply of lymphatics, gives better results than the stomach, but less favorable results than the large intestine.

The stomach.—If one were to drop a line vertically from the cardiac orifice across the greater curvature, the stomach would be divided into two unequal parts; the larger part, composed of the dome and fundus, has but a scanty supply of lymphatics which pass to the left to the glands lying in the splenic area, and to the cardiac glands about the esophagus. The smaller pyloric segment has nine-tenths of all the lymphatics of the stomach. They are divided into four groups:

1. The glands along the lesser curvature, lying in the wall of the stomach itself and draining into the glands about the celiac axis.

2. Those along the greater curvature which lie with the gastro-epiploic vessels. In this region the lymphatic current passes from left to right toward the pylorus.

3. That important group lying about the

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pylorus, the first portion of the duodenum, and the head of the pancreas.

4. The few glands which pass with the superior pyloric vessels.

The situation of these four groups of glands is definitely determined by the four blood-vessels, so that early ligation of the gastric, gastroduodenal, superior pyloric, and gastro-epiploic vessels, not only permits bloodless operation, but enables radical removal of the tributary lymphatics. Unfortunately, this glandular scheme of lymphatic drainage may be disturbed, first, because of the fact that lymphatic drainage may be irregular, passing by some glands and emptying into more distant ones; or, second, by blockage of a main lymphatic trunk, and the lymph flow may be turned into bypaths leading into the pre-aortic glands. When the disease is advanced, both of these conditions may be found to exist.

The mortality following resections of the stomach is steadily diminishing. It is now from five to eight per cent, and depends more upon the patient's condition at the time of operation than upon the operation itself. Taking into consideration that, at the present time, the initial recoveries are well above 90 per cent and that the patients who recover get a chance of cure somewhat better than 25 per cent, it certainly seems incumbent upon the medical profession to make a more determined effort toward an early diagnosis.

It may be stated as an axiom that cancer as cancer in the stomach does not produce symptoms upon which an early diagnosis can be made. Only when its situation makes a palpable tumor-mass or produces obstruction can a probable diagnosis be established.

The small intestine.—Primary carcinomata of the small intestine are exceedingly rare, and but few cases have come under our observation. Of the 14 cases reported in this series, 5 were in the duodenum, and none of them were operable. In two cases, the duodenojejunal angle was involved, and both were inoperable. Of the remaining 9 cases, 4 involved the jejunum, and 5 the ileum. In 2 of the 5 cases submitted to excision, the disease had begun in a pedunculated adenoma or papilloma, and in both intussusception was present.

The large intestine.—The large intestine is a most interesting field for study. Morphologically, it begins at the ileocecal orifice and ends at the rectum. Embryologically and physiologically, it is composed of two entirely separate organs. Taking the gastro-intestinal tract as a whole, we find that the celiac axis supplies those organs derived from the foregut, that is, the stomach, liver, pancreas, and duodenum, down to the common duct. The superior mesenteric artery supplies all of those organs which are derived from the midgut and which are instrumental in assimilation and absorption. They are composed of the duodenum beyond the common duct, the jejunum, ileum, cecum, and ascending and transverse colon as far as the splenic flexure. In the organs which receive their blood-supply from the superior mesenteric artery, the normal peristalsis is onward. Ninety per cent of the solids are picked up in the small intestine, while 50 per cent of the liquids and 10 per cent of the solids are absorbed in the cecum and colon proximal to the splenic flexure. The inferior mesenteric artery supplies the derivatives of the hindgut, and the normal movement, except during defecation, is antiperistaltic. By means of mucous currents, the distal colon is intermittently engaged in passing material for further elaboration and assimilation backward into the area of midgut absorption. Under normal conditions the contents of the large intestine, as far as the splenic flexture, is fluid or semisolid. The descending colon is usually empty, acting as a passageway only into the sigmoid where the feces become more solid in character.

Tumors of the cecum and colon proximal to the splenic flexture, are sometimes accompanied by changes in metabolism; the nutrition of the patient often suffers, and profound anemia may result. Tumors of the descending colon and sigmoid are seldom accompanied by changes in nutrition, and it is the mechanical effects of the tumor which first call attention to the patient's condition.

The surgical treatment of tumors of the large intestine is greatly simplified by the study of its embryology and anatomy. The large intestine is formed on the left side of the abdomen. The head of the colon begins to rotate at about the eleventh week. As the rotation progresses the colon carries with it its blood-vessels, lymphatics, and sympathetic ganglia; and when its normal situation is finally reached, the outer layer of mesenteric attachment is merely a peritoneal adhesion, the division of which, at any situation, enables that part of the colon to be turned upon its long inner mesenteric leaf, which contains all of the important structures.

Generally speaking, malignant disease in any part of the large intestine proximal to the middle of the transverse colon is treated best by removal of all the large intestine up to and including the growth, doing lateral ileocolostomy. Beyond this point resection of the colon in one or two stages is preferred.

The lymphatics of the large intestine lie with the blood-vessels, and, usually, are easily removed. Many times when the lymphatics are enlarged, microscopic examination shows it to be the result of infection, and not of carcinomata. In the early stage of the disease proper mobilization of the large intestine, permitting one to secure the blood-supply with careful and accurate removal of the glands, gives a prospect of cure which justifies the most extensive operations. It sometimes happens that one or more loops of the small intestine may have become adherent and involved secondarily with the tumor mass. As a rule this takes place along the periphery of the bowel. On a number of occasions we have first resected a loop of the small intestine; twice we have removed two separate loops, and in one instance, three loops, removing the primary growth in the colon with the portions of the small intestine attached. In four cases we removed a portion of the bladder, and in three cases the uterus was coincidently removed. The ultimate results in these cases of multiple resections have been surprisingly good, and we have several such patients alive and well more than five years.

The rectum.—The radical cure of carcinomata of the rectum has a bad name in surgery, which is due more to inefficient methods of operation and purely sentimental attempts to conserve function than to the character and location of the disease. We are coming to the conclusion that a permanent colostomy in the middle of the left rectus muscle should be made as the primary operation in the majority of cases of carcinoma of the ampulla of the rectum, and at a second operation, after the lower segment has been properly cleansed, the entire rectum should be removed from behind. This method offers the patient moderate control, with the best chance of a permanent cure.

High rectal and rectosigmoid growths will often be best approached through the abdomen or by the combined method. The perineal operation should be reserved for growths in the anal region.

The frequency with which secondary carcinomata of the liver, peritoneum, or inoperable glandular involvement occur, makes it imperative in all cases of carcinomata of the rectum and rectosigmoid to first open and thoroughly explore the abdomen to see whether the case is one which should be submitted to operation; and, if advisable, a permanent colostomy can be made at this time.

The diagnosis of cancer of the rectum is so easy that one wonders why so many patients come for consultation without a diagnosis, and why nearly 15 per cent of them have been recently operated on for supposed hemorrhoids. It is a simple matter to examine the rectum digitally, and it requires but little skill to use a proctoscope or sigmoidoscope. Neglect of these simple methods of examination causes not only disaster to the patient, but injury to the practitioner's reputation.

Lack of examination, rather than lack of knowledge, is responsible for most mistakes in diagnosis.

DISCUSSION OF THE THREE PRECEDING PAPERS

Dr. A. Schwyzer (St. Paul): It is almost impossible to hear anything of these papers in this room, especially back where I was, but I had the good fortune to read the paper by Dr. Beckman before, and so I want to make a few remarks, especially in regard to his paper.

It almost seems trivial that again and again the surgeon calls attention in his paper to the fact that we must get these cases early, but if a man sees what happens day after day he cannot help but bring up again a matter of such great importance, and I am sure these gentlemen have done it, because they get every day lost cases of that kind.

Dr. Beckman has told us of the enormous resections of the neck that we can make. Operations that would have seemed impossible to surgeons twenty years ago, are now being made with comparative impunity. The hypoglossal, the pneumogastric, the phrenic, and other nerves can be resected often with impunity.

Dr. Beckman mentioned also that the ligation of the carotid artery can be done, and that the ligation of the common carotid is much more dangerous. I think that he means it in comparison with the ligation of the external carotid, because the ligation of the common carotid is much less dangerous than that of the internal. If we have an early case of carcinoma of the lower lip, it is usual that the submaxillary region is dissected away. I would like to ask what the rule is in the Mayo Hospital, whether they always remove the submaxillary salivary glands. I do this and saw in two or three cases where lymphatic glands were located in the salivary glands.

I have hardly anything to add to what the doctor gave us in outlining the different channels of the lymphatics. I might mention just one thing, not very important from a practical standpoint, but perhaps more so from the scientific standpoint. Poirier and Cuneo have stated that there is no communication between the lymphatics of the chest and those of the neck, and surgeons have accepted this dictum, as it corresponds with practical results. But since that work of Poirier and Cuneo came out, communications, though small, between the glands of the neck and the upper thoracic glands, have been found to exist. Beitzke, Most, and Bartels found that there exist communications between the paratracheal and also the pretracheal glands and the thoracic and bronchial glands. This is especially interesting, since the teaching of Poirier and Cuneo, that the glands of the neck did not communicate with the thoracic glands, had been generally accepted by the surgeons.

Dr. Mayo said that the pessimism of surgeons in operating for carcinoma of the gastro-intestinal tract is not justified, and I think this statement coming from such a high authority ought to be accepted with gratitude by the medical profession.

There is one other point,—I do not know whether he made it, because I could not hear very well what was said,—and it is a point which I desire to emphasize, namely, that we should resect very far away from the macroscopic seat of the tumor in the viscus. My oldest case of a permanent cure of carcinoma of the stomach was a man where I resected much farther than usual away from the seat of the large pyloric tumor. In the macroscopically normal mucosa I found a carcinomatous infiltration, only demonstrable microscopically. The extent of this microscopic carcinomatous change was about 2 to 2½ centimeters. It is six years since the operation, and the patient appears in good condition. I have been agreeably surprised by the non-recurrence (up to five years) of seemingly too-far advanced carcinoma of the colon.

Dr. J. Clark Stewart (Minneapolis): As Dr. Beckman has clearly pointed out, cancer of the lip is ideally situated for cure; yet how few of the general profession, and, until the past five years, how few of the surgeons, have recognized this and done a proper radical operations?

In 1903 I showed before this Association photographs of three radical operations done in 1901 and 1902, and advocated radical operation in all cases. I received no support at that time. I believe now, as I believed and taught at that time, that no other than a radical operation should ever be used for cancer of the lip, however early. No one has a right by an inferior operation to deprive his patient of the twenty-five to forty per cent extra chance given by a radical operation.

I would ask Dr. Beckman to make a comparative study of the results obtained at Rochester from the radical and the old V operation.

Epithelioma of the lip recurs early, if at all, and a comparison of the recurrence rate for the six years before taking up the radical operation would prove most instructive. I think it would show at least thirty-three and a third per cent benefit from radical treatment.

The important end of a symposium like this is to educate the profession and make them believe—

First, that cancer is curable;

Second, that operation must be radical;

Third, that the first operator holds the fate of the patient in his hands, and his neglect can rarely be remedied.

Dr. F. A. Dunsmoor (Minneapolis): I do not expect to add anything to what has already been said, except that I do wish to join in congratulating ourselves on what we have heard, and, in addition, I wish to emphasize about three points:

First, about the use of actual cautery. The only reason for using the cautery is in the doubtful carcinomata where it is possible that all the diseased tissue has not been removed, but use it in such a way that you may be sure you have destroyed the tissue next to the growth. Let the cautery remain in position until it has charred the adjacent tissue.

Now, one other point in regard to doubtful cases. I must confess that I care more for the welfare of my patient than I do for my reputation in making a cure. I believe that surgery will often not avail anything, but if I had a choice I would take a very great chance rather than die the terrible lingering death of cancer. I am *not* going to operate in cases where we know we have got to go beyond where the knife can go with safety. If we operate on a patient who has to die anyway, it is always generous to explain to the public and to the friends that we do not expect to prevent the recurrence, but that an operation for relief of conditions like obstruction or agonized nerve is necessary and humane even if we can't pad our record for cures. I believe if the patient has such a terrible thing hanging over him as cancer he should have the benefit of even a ten-per-cent possibility of recovery from operation.

Dr. J. E. Moore (Minneapolis): I heartily endorse the principles laid down and the treatment advocated in Dr. Beckman's paper.

The erroneous opinion has widely prevailed that carcinoma of the face is not so malignant as in other parts of the body, and that radical treatment is not necessary. This is due to the fact that cancer of the face is recognized earlier than in any other part of the body, and earlier operations have been performed. This strengthens the contention of the surgeon that carcinoma is originally a local disease.

The paper of Dr. Plummer covers a field less attractive to the surgeon, because he can accomplish so much less there. There is one ray of hope in the doctor's paper, however, that should encourage us to familiarize ourselves with the methods of diagnosis so ably taught by him the past few years, and that is, that so large a percentage of esophageal obstructions are benign. I know of no greater victory for the surgeon than that gained by dilating a benign stricture of the esophagus and saving the life of a starving patient. Fortunately for the surgeon and humanity, carcinoma of the small intestine is comparatively rare, for results of surgical intervention are not nearly so good here as in other parts of the intestines. The mortality of carcinoma of the stomach without operation is one hundred per cent, and if, as Dr. Mayo has demonstrated, twenty-five per cent can be saved by operation it surely requires no argument to establish its value.

Carcinoma of the large inestine is an encouraging field. The diagnosis is not so difficult, and results are remarkably good. By cutting the outer leaf of the mesentary, as Dr. Mayo has shown us, the technic is comparatively simple, as most of the work can be done outside of the abdomen. The large bowel is remarkably tolerant of surgery.

There is one point made by Dr. Mayo that I wish to endorse most emphatically, because all surgeons do not agree with him, and that is in reference to the value of colostomy in carcinoma of the rectum. This comparatively simple operation gives immediate relief and enables us to perform radical operations on the lower bowel that we could not do otherwise. I have patients living and well today upon whom I performed colostomy fifteen years or more ago who could not have been saved in any other way.

There is another point in this paper that should encourage those who are disposed to be pessimistic on this subject, and that is the large percentage of tumors of the cecum and sigmoid presumably malignant that prove to be benign when put under the microscope.

Dr. Archibald MacLaren (St. Paul): I wish to congratulate Dr. Mayo and also the Association on this very excellent paper. This field of surgery has not been one that has given me any great satisfaction. One can say the same for cancer in any part of the body; but my own results have been very disappointing in malignant diseases of the intestine.

Dr. Mayo's suggestion of loosening up the cecum from the outside, exposing the nutrient vessels of the large intestine and tying them before attempting the resection, is a very useful one, and to me has simplified the resection of the first portion of the large intestine very much.

In removal of the rectum my preference has been, when possible, a modified Cræskey. Several cases have had very good sphincters, but eventually all have had a return of the cancer.

Dr. L. A. Nippert (Minneapolis): Before infiltration of the lymphatics, carcinoma is a local disease, and hence an early diagnosis, offering an opportunity for early removal, is clearly the chief requirement for reducing the mortality of cancer. On what symptoms and signs are we to base our early diagnosis? Indefinite symptoms of indigestion and of chronic obstruction are not sufficient; and absence of free hydrochloric acid after a test-meal is not conclusive. Cachexia and appreciable tumor, the two most characteristic signs of carcinoma, are late symptoms, too late for successful permanent relief. There remains but one course to be advised: Exploratory laparotomy in cases in which age and emaciation, with symptoms of chronic dyspepsia or obstruction of the bowels, causes us to suspect the possibility of cancer.

THE NEW PUBLIC HEALTH—FIRST PAPER

By H. W. Hill, M. D., D. P. H.

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MINNEAPOLIS

The statement that there is a "New Public Health" may shock those who, although familiar with recent changes in scientific thought, yet have not fully realized what those changes mean; but the shock will be far greater to those who have not appreciated that changes were going on.

The purpose of this article, the first of a series, is to formulate for both groups, the unconscious progressive and the unconscious conservative, a brief statement of the essential principles of modern official public-health work. To those who may feel skeptical as to the fairness of this exposition, the writings of Chapin, the great American pioneer of modern public health, of E. O. Jordan, and of M. N. Baker, may be offered as bearing directly upon these questions, while the whole of modern technical public-health literature may be offered as indirect evidence.

The old principles have merged gradually into the new, in keeping with the experiments, observations, and conclusions of many investigators in many individual sciences related to general public health. Within official public-health circles, bacteriology, clinical observation and mathematics have furnished most of the reconstruction. The bacteriologist, the epidemiologist, and the vital statistician, sometimes working together, more often alone, in the dark and even at cross purposes, have nevertheless all reached the same point, and today each finds his co-workers beside him. Much of the work done has consisted in clearing away the fallacies built up by tradition, but construction-work has gone on also, and it is now possible to formulate the results.

The essential change is this: The old public health was concerned with the environment, the new is concerned with the individual. The old sought the sources of infectious disease in the surroundings of man; the new finds them in man himself.

The old public health sought these sources in the air, in the water, in the earth, in the climate and topography of localities, in the temperature of soils at four and six feet deep, in the rise and fall of ground-waters; it failed because it sought them, painstakingly and exhaustively, in every place and in every thing *where they were not.*

The new public health seeks these sources—and finds them—amongst those infective persons whose excreta enter, usually by the mouth, the bodies of other persons.

The old public health failed to find the sources of infection; it also failed in most instances to find the routes of transmission. It is true that public water-supplies were detected as at times acting thus; but milk was hardly suspected twenty years ago, and flies, suggested in 1887*, were not seriously considered until the Spanish-American war; mouth-spray * * and hands have been only recently recognized as important. On the other hand, dirty clothes, bad smells, damp cellars, leaky plumbing, dust, foul air, rank vegetation, swamps, stagnant pools, certain soils, smoke, garbage, manure, dead animals, in fact all the things physically, sensorially, esthetically or psychically objectionable, were lumped together as "unsanitary" without much distinction of "source" or "route," and were regarded as a sort of general "cause of disease" to be condemned, wherever found, "for fear of epidemics."

It was taught that infectious diseases "generated" in the foul, ill-smelling, unventilated, sunless hovels of the slums. In the vogue of those days, "the slum-dwellers live like pigs, and thereby invoke the coming of smallpox, scarlet fever, typhoid fever, diphtheria." When these diseases invaded the home of the well-to-do, where this explanation was not seemly, a pinhole leak in some plumbing fixture accounted amply for diphtheria; rotten potatoes, forgotten in a dark corner of the cellar, for typhoid fever; scarlet fever was traced to a letter from a friend who had had the disease months before; smallpox to unpacking books used by a patient a quarter of a century previously; manure piles gave rise to cholera; and dampness to malaria, which was not recognized as transmissible at all. Yellow fever originated in impure water and was directly transmitted from person to person—a typical example of intense direct contagion; tuberculosis was non-infectious and hereditary; bubonic plague was banished from the Egyptian Cairo "simply by improving the ventilation of the city" (!)*

Remedial and preventive measures, based on such beliefs in the omnipotence of environment, naturally sought to remodel the lives and immediate home surroundings of the whole population to conform with a vast array of alleged "sanitary laws of health." Yet he who seeks for a scientific demonstration of the relations existing between disobedience of these "sanitary laws" on the one hand, and the incidence of disease and death on the other, will find only a "twilight zone" in which move vague shadows of traditional fear, shadows which, on probing, fade mistily away.

The New Public Health is not worried by elaborate theoretical possibilities, but concerns itself earnestly with practical probabilities. The occasional, unusual, bizarre routes of infection in the one per cent of cases, do not distract its attention from the usual, practically constant, simple, ordinary routes concerned in the ninety-nine per cent. Its main postulate is that the routes of infection are simply the routes of infected bodily discharges, which, again, are identical with the routes of ordinary uninfected discharges in ordinary life.

The old style "sanitary inspector" was expected to, and usually did, "condemn" everything in sight, from the garbage-pail at the back door to the plumbing in the bath-room. But disease continued, because he was condemning, as a rule, so far as health was concerned, things largely "incompetent, irrelevant, and immaterial." What availed it that the garbage-pail was emptied every day or a vent-pipe placed on the bath-water waste-trap, if the milkman delivered scarlet-fever-infected milk at the door, or an unrecognized case of measles sat next the children at school?

The New Public Health sees in the garbage-pail merely a place where flies are fed and, possibly, bred. But the flies cannot carry infection *if infected discharges are not accessible to them.* "Defective plumbing," such a nightmare twenty years ago, has been conclusively shown to have nothing to do with disease-generation or disease-propagation whatever, unless perchance there be actual gross leakage of infected sewage. The unventilated front parlor could not produce tuberculosis in a hundred years; diphtheria does not develop from the family well; and typhoid fever (in Minnesota) is but seldom properly traceable to that source, either. The modern public health man cares nothing, so far as restriction of disease and death is concerned, for the dirty back yard or the damp cellar in themselves, but only as they may enter into the transmission of infected discharges. Then, at once, they become of vital importance. The sanitary inspection of the modern sanitarian, so far as relates to infection, begins and usually ends with the search for (a) the infected individual; (b) the routes of spread of infection from that individual; (c) the routes of spread of the ordinary excreta of ordinary uninfected individuals to the mouths of their ordinary associates in ordinary life. These latter are sought for, not because of danger from such uninfected discharges, but rather because infected discharges, introduced into and following the same well-beaten paths, will necessarily reach the same mouths. To locate all the infective persons and to guard all their discharges would be wholly sufficient, but since this cannot always be done perfectly, it is well to guard also the routes which unlocated infection may take.

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*Wm. H. Welch: Address at the Annual Meeting of the Medical and Chirurgical Faculty of Maryland 1887, quoted in "Sewage and Local Drainage."—Waring, 1889.

**By this is meant the fine droplets thrown out from the mouth in speaking, singing, laughing, sneezing, coughing, etc.

*Parke's Hygiene, 1891; eighth edition. This was a standard work of twenty years ago.

Has environment, then, nothing to do with infectious diseases? Environment acts in two ways: First, unequivocally and without reserve, such environments as permit or encourage or, still worse, necessitate the exchange of human excreta in ordinary life, contribute in the long run to the spread of disease since they insure a similar exchange of infected excreta so soon as the latter are introduced.* Let us take one environmental evil, overcrowding, as an example. Overcrowding, if combined with lack of discipline and order, and lack of facilities for washing, especially for the washing of hands, contributes to the spread of infectious diseases; but not in itself, nor at all, unless infection be introduced into the community. Then overcrowding, because it tends to insure exchange of human excreta, tends also to insure that the infection will spread rapidly and extensively. But overcrowding, if the overcrowded be disciplined, intelligent, and take proper precautions to avoid exchange of excreta, does not necessitate the spread of infection, even if it be introduced. On the other hand, infection may spread, and frequently does, without overcrowding, if the essential factor of such spread exist, i. e., the transmission of infected excreta.

Second. Environments that are bad from a physiological standpoint (bad for the body, regarded as a delicate biological machine) are often held to act in spreading infection indirectly by "depressing vitality" to an extent which makes infection, if received, more likely to develop (and if it develop, more successful in injuring the body.) It must be said, however, that the evidence on this point, except perhaps that relating to tuberculosis and pneumonia, is very slight. It is a debatable question whether or not overcrowding "depresses vitality" in the direction of increasing susceptibility to infectious diseases, whatever its effects may be in encouraging "general debility." It is a very debatable question whether or not "poor ventilation" to which the effects of overcrowding are often attributed, can or does "depress vitality" in the direction of lessening resistance to infectious diseases, whatever bad effects it may have on mental vigor or physical activity. It is true that there is evidence that such environments as lead to extremes (beyond the limits of compensatory adjustments by the body forces) of mal-nutrition, of temperature, of fatigue, and of alcoholism, probably may have an effect in insuring the development of infection, which under better conditions might be negatived by the body forces. Especially may these forms of bad physiological environment be influential when the dose of infection is small, infrequent, or low in virulence. But starvation, unsuitable temperature, fatigue, alcoholism, alone or together, cannot induce infection, nor will the converse conditions, alone or together, offset the effects of infection when the dose is large or frequently repeated or of high virulence.

(to be continued.)

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*An excellent exposition of this effect of environment on the spread of disease is given by Chapin in the Report of the Providence Health Department for 1910.

SOME REMARKS ON ROUTINE EXAMINATIONS IN THE GASTRO-INTESTINAL TRACT*

By T. W. Stumm, M. D.

ST. PAUL.

In recent years the size and shape of the stomach have received considerable attention; and through the anatomic work of His and the x-ray examination by various observers, our ideas have been materially changed. For instance, the cardia and pylorus were formerly considered as the fixed points in the stomach; now we know that the pylorus admits of considerable motion. The empty stomach is no longer thought of as an empty bag, but when at rest there is considerable contraction, lessening the cavity and thickening the walls. The x-ray has revealed to us much relative to motion in the organ, and has taught us that there is a radical change in its outline in the erect and recumbent positions. In the former there is a decided fish-hook shape, while in the latter there is a more rounded outline. The bismuth meal has a tendency to lower the outline, while inflation with air causes the outline to stand higher.

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*Read before the Hennepin County Medical Society, May 1, 1911.

The size of the organ varies in different individuals, just as does any other part of the anatomy. The lower border reaches normally about two inches above the umbilicus, and the plyorus at rest is near the median line, slightly to the right during digestion. Estimation of the size is comparatively easy by inflation, though not entirely accurate. This is best accomplished by inflation with air by means of an ordinary Davidson syringe and a short stomach-tube, as will be noted in a moment. In this way the outline shows plainly in most cases, and it is by the visible outline that one is to judge. Some care must be exercised in filling the organ, but by using the syringe this can be accurately gauged and the discomfort relieved if there is pain.

Frequently one can see the outline through the abdominal walls without distention if the latter is not too thick. Conheiem has become very adept in palpating the lower border after having the patient drink a glass of water. Another very good plan to locate the border is through the splashing sound that can be elicited in a good many instances when a glass of fluid is in the stomach, having first ascertained that this was not present beforehand. This can be done though only if the abdominal walls are lax, and the more atonic the stomach itself the plainer the splashing. Position of the patient here also makes a difference, as does the quantity of fluid; especially is the latter true in an atonic stomach. Ordinary percussion is extremely unreliable. I never feel sure if the stomach or colon is giving the percussion note. If one will only outline what he thinks is the stomach on a cadaver and mark the points and then compare with the true position when the abdomen is opened, the fallacy of this method will be apparent. Oesterreich was the first one to point this out to me, but having repeatedly tried it I have become thoroughly convinced. If splashing is present seven hours or more after the meal then one might judge that the motor power was poor and think of a dilatation, though such a procedure is not safe, for the splashing sound may come from the intestines and not infrequently does. Patients frequently complain of a splashing sound in the stomach and are often greatly exercised about it. Such patients are usually neurotic individuals with thin abdominal walls and probably with atonic and ptotic stomachs, though even in these cases the motor power is usually good and the stomach empties itself in a normal period.

Much information may be gained by examination of the vomitus. The gross appearance may show us the presence of food and considerable about the progress of digestion. If pieces of meat are seen seven hours after ingestion one can readily conclude that the digestion of proteids is poor. The digestion of bread in the stomach is less, though if particles are seen but little changed this is recognized as pathologic, for the normal appearance of bread after it has been in the stomach for some hours shows it to be in a finely divided state. The time that the emesis occurs after ingestion is of great importance. If immediately after eating, one is inclined to look for some cause other than the stomach itself; while if particles of food can be recognized that were taken the day previously stagnation is assured, and usually this is due to a pyloric obstruction. Accurate analysis of the vomited contents is usually not necessary, though one can easily test for free HCl, and the odor will frequently give information as to the presence or absence of organic acids. There may be much mucus that is apparent. Blood in a somewhat altered state is not uncommon in amounts varying from just enough to be recognized to an appalling amount; small red streaks have no significance. Bile is frequently seen, though is not present as often as one might judge from the descriptions given by patients. Pus may be present, though this is not a common finding. Fecal vomiting is of significance when it occurs and should never fail to receive grave consideration. The odor and color should be enough to cause recognition in this condition, but I fear it is sometimes overlooked. Now and then large amounts, a quart or more, of thin watery material is vomited, frequently or at rare intervals. Simply dipping in a strip of congo paper will tell us if free HCl is present or not; usually in such instances it is. Uremics frequently vomit, and the odor here is often characteristic, the smell being more or less like ammonia, this being due to the decomposition of urea that has occurred in the stomach. Intestinal parasites are occasionally brought up from the stomach. Associated with any or all of these conditions one not uncommonly notices a greenish color. This is due to a bacterial growth that has been demonstrated, especially in stagnating contents.

While examination of the vomitus is essential, it is of secondary importance in furnishing us evidence relative to the functions of the stomach. The ordinary long stomach-tube with a bulb at the middle is a poor apparatus to secure a test-meal compared to a short tube about thirty inches long, moderately soft, of medium size, and well perforated at the end with some perforations along the sides in the lower part. I much prefer to have the patient in the left lateral or dorsal position. Then by using a conical glass-graduate the contents are siphoned off easily. What do we expect to gain by such procedure? *First, and by far the most important information furnished is whether the motor power is normal.* There are so many factors entering into the secretory functions that what we learn from them is frequently of a rather hazy nature. We know that a normal stomach empties itself of an ordinary meal in about eight hours; so if one passes a tube in the morning after an ordinary meal the evening previous, the stomach should be empty, or contain a few cubic centimeters of clear non-acid fluid; if, instead, part of the previous meal is still in the stomach, something is radically wrong with the motor power. In a great percentage of cases this means an obstruction at the pylorus. It may be due to adhesions, large glands, or to something else without, or, *most frequently*, to some pathologic condition in the wall of the pylorus or duodenum. This information is of a decidedly positive nature, and such cases usually fall at once into the surgical class. In Europe more temporizing is done in cases with stagnation than here. I have known of patients here going on for years though with a moderate stagnation probably due to a partial cicitricial stenosis following an old ulcer. Now and then the condition would become exacerbated, and a resort to the stomach-tube with a thorough cleansing out and a partial fasting for a few days would make them fairly comfortable again. Such cases, in my opinion, are always surgical, but, unfortunately, they will not always consent to operation.

There is another condition closely associated with stagnation that deserves attention. I refer here to cases of intermittent hypersecretion. Frequently in such patients only a few cubic centimeters of solid contents will be recovered in a fasting stomach in the morning, but there may be from 100 to 1,000 liquid contents, usually highly acid in character. As you know, Reichmann described this condition of hypersecretion in two forms: the intermittent and the continuous. The more I study the intermittent type, the more I am convinced that there is some grave pathologic condition at the bottom of it, usually an ulcer. The more ulcer cases one studies carefully, the more protean the symptoms become and the harder they are to diagnose. It may be that there are patients from whom one can secure such a secretion while fasting, without the solid particles where there is no organic basis for the condition, but if even a small amount of stagnation is present I am always extremely suspicious. These cases require much more attention and study than those in which much stagnating fermenting contents are found; here the obstruction is practically apparent. Simple as the procedure in testing the motor power is, how often it is neglected, more through negligence than through any thing else!

While the tube is in the stomach it takes only a moment to fill the stomach with air and ascertain the location and approximately estimate the size of the organ. The former is far the more practical and important. While there is variation in the size of normal stomachs, the dilated one is nearly always the result of a pyloric obstruction, and it is only dilated after a hypertrophy of the walls has failed to force the contents through. Dilatation is a comparatively late condition, and, if the patient has been observed, he should be relieved long before dilatation takes place, for the stagnation was surely there long before.

Recognition of the position, as was noted above, is of great importance and should always receive attention, much more so than it frequently has had. If the stomach is down it is easy to see when inflated. This is as reliable as the bismuth meal. While these patients may have some pathologic condition, such as gall-stones, appendicitis, or what not, they are not going to get relief by the thing that was in the past hoped for as a panacea,—gastro-enterotomy. The condition of ptosis of the stomach has been known to us for a long time, but there are many of these unfortunate individuals today who have been made more uncomfortable by a clearer conception of the condition having escaped some of us.

When I begin to talk on ptosis of the stomach I always have a tendency to get "side-tracked," for the subject is so difficult to handle satisfactorily from a therapeutic standpoint, and the importance of it is so great, that there is a desire to discuss it. However, I am glad to say that I think a clearer picture of the condition has *forced* itself onto us at last, and the importance of recognizing it in a differential diagnostic way is now usually considered.

Tumor masses that were not palpable before inflation may be so now, or some rare condition, such as the hour-glass stomach, may possibly be recognized. When we have gained what information we can by inflation, the air should be expelled by gentle pressure over the stomach.

There yet remains the test-breakfast or test-meal to furnish us some information in our examination, but for one to expect too much from this source will be disappointing. I use this almost daily, but often, after it is done, I ask myself, "Now, what have I gained by this procedure?" and often answer, "Frequently very little, if anything."

The Ewald-Boas test-breakfast, consisting of 35 gms. of stale white bread and 400 c.c. of water, will give us, in most instances, all the information we can get outside of testing for the motor function in the fasting stomach eight to twelve hours after a full meal. I consider it a matter of small importance just what one uses for a test-breakfast. There are several in common use, and probably one is about as good as another, providing the same one is adhered to all the time by the same worker. I have been in the habit of using 35 gms. of stale bread and 400 c.c. of water. This, as is well known, is usually recovered at the end of an hour. One ordinarily recovers about 100 to 150 c.c thin, whitish contents that readily flow through the tube. A macroscopic examination shows at once if the digestion is as it should be, or if the particles of bread look as though they had been broken up and standing in a glass of water for some period of time. If allowed to stand for a time, about half should be solid and half liquid. If there is more or less liquid than this, compared to the solids, we see at a glance that we have a hyposecretion or a hypersecretion; this is of importance. Then, instead of the thin, whitish contents, they may be tough and stringy from the intermixed mucus, which, when from the stomach, is always intimately mixed, and, if from the pharynx, floats in strings on the top. Frequently in achylia gastrica cases the contents will be thick and pasty, but will contain no mucus. Here it may be difficult to recover enough to examine; or the motor power may be such that the stomach will be empty at the end of an hour, while, in other cases, even 1,000 c.c. may be recovered due to a hypersecretion.

Free HCl is readily tested for by a strip of congo paper. Short as this macroscopic examination is, it may have given us something of importance. There then remains a chemical examination to test for the amount of free HCl and the total acidity. If there is more than a trace of free HCl there is no use in testing for lactic acid. If there is no free HCl one should test for lactic acid, though this has but little significance, for it means only a stagnation without free HCl. We used to think that stagnation with free HCl spoke strongly against malignancy. It does not necessarily at all. I recently saw a stomach with a carcinomatous infiltration as large as my hand in which there were 60 c.c. stagnating contents in the morning with a F. A. 60 and T. A. 80. From a test-breakfast 1,000 c.c of highly acid contents were recovered.

But suppose we find a high acidity or a low one, a hyposecretion, or especially a hypersecretion in the test-breakfast, is it going to tell us whether we have an ulcer or a neurosis? It has but little to say, one way or the other. The microscopic examination has no great value. The stagnating contents may show various micro-organisms, such as sarcinæ, yeast, Oppler-Boas bacilli, protozoa, etc., but the stagnation alone usually means an organic obstruction, and this means that the case is surgical. We have no clinical means of diagnosing an early carcinoma of the stomach, and if this rule is adhered to some patients will be saved that otherwise will not. There will be other factors to consider in reaching our conclusion, and so far as stomach diagnosis is concerned *the history* is of the greatest value; but we are not discussing that part here. You have doubtless noticed that I have not even referred to many things that are often dwelt upon at length in discussions on stomach analysis. These have been omitted on purpose, since, in ordinary examinations, they, taken alone, would have no special significance. To do all that has been mentioned here takes but little time, and if done, and properly considered, really means much to the patient.

Having rather hastily noticed some of the procedures that are carried out in an ordinary examination to ascertain a knowledge of the workings of the stomach, let us for a few moments, turn to a part of the gastro-intestinal tract that has received less attention, especially from a functional standpoint. While it is easily possible to gain access to the stomach and recover the contents during the active period of digestion in the organ, such is not the case in the intestinal tract. Some observers have claimed to have passed the pyloric ring and secured contents from the duodenum, or, as Vollhard has claimed, by means of an oil meal, they have secured duodenal contents from the stomach that have passed backward. These results have not been very instructive. Until comparatively recent years the examination of the feces was of small value in telling us much relative to the intestinal functions, and our methods were largely limited to physical diagnoses, which indeed have, in some lines, been extremely helpful, but have still left much to be desired.

The methods dealing with physical diagnosis will not be discussed here at all. Let us consider what has been done in testing the digestive functions in the intestines. This field of medicine took a long step forward through the work of Schmidt and Strasburger, and what will be said here is based largely on their work; indeed, theirs was, and has been since it came out, the foundation-work along this line, though some years ago Nothnagel tried to give this work a more important place in our examination of patients. I feel there is much more to be gained from an examination of the feces than most of us obtain, since, not only the digestion and absorption of the food in the intestine, but, to no small extent, the functions of the liver and pancreas, are to be ascertained in this way. The work, as done by these men, is practical and is such that it can be done without consuming too much time or requiring expert laboratory training, as does the analysis of the nitrogen, fat, etc., in the estimation of chemical metabolism. Even when the latter is done it is of small practical value. Practically a method which allows one to judge by macroscopic or microscopic examination what food is being used, and what is not, is of far more value. To do this the demand on the intestinal digestion must be in the neighborhood of normal, but the food should be of such a nature that one can gain by moderate experience an idea of what is found in the excrement, though there must be the three chief forms of food ingested,—fats, carbohydrates, and proteids,—and these of such a nature that the average diseased intestine can handle them. Such a diet is outlined by Schmidt, and is the one that I am in the habit of using. It is as follows:

Morning.—One pint of milk, tea, or cocoa with a little sugar and 50 gms. of zwieback.

Ten o'clock.—One pint of oat-meal gruel (40 gms. of oat-meal, 10 gms. of butter, 200 c.c. of milk, 300 c.c. of water, 1 egg, and a little salt), strained.

Noon.—125 gms. of finely-cut beefsteak, rare, cooked with butter; 250 gms. of mashed potato rubbed through a sieve, 10 gms. of butter, and a little salt.

Four o'clock.—The same as morning.

Supper.—Same as at 10 o'clock.

Such a diet furnishes about 2,250 calories, and is not objectionable to most patients; in fact, some of them would prefer to continue with this or a similar diet after the three-day period that is necessary for this diet to be kept up so as to be sure and secure a stool that shows only fecal matter that has come from the test-diet, a stool having been secured at least once each day.

There have been numerous diets proposed for testing the intestinal function, but most of them are only modifications of this one, or something based on the same scheme.

The examination of a stool from such a diet requires but little time, and, especially in a hospital, is of no inconvenience to the patient. For ambulatory patients it is not quite so convenient, but can be easily carried out. For the purpose of examination it is best to secure a fresh specimen, though a few hours do not interfere with the procedure. Macroscopically, such a stool is rather soft in consistency, light yellow in color, from the milk, but darker if cocoa has been taken. By this examination one can gain a pretty clear idea of the intestinal digestion; in fact, the macroscopic examination is the most important part. If an abundance of fat is present it is apparent by the greyish color; in other cases the tarry color characteristic of blood will be noticed. The odor of organic acids in a fermenting stool is frequently observed, or the especially diagreeable stinking odor of decomposition of proteids in others. For a more exact examination, a portion of the stool, as large as a walnut, is well mixed, put into a mortar and *thoroughly ground* with the addition of a little water almost drop by drop at first. Enough water should be added to make the mass about the consistency of pea soup. One should then pour a small portion of this in a flat vessel, colored black, or a clear one resting on a black ground; the layer should be thin. With a mounting-needle one can examine any small particles that are seen on the background. The most important of these are—

1. Small or larger particles of connective tissue that are recognized by the whitish color and firm consistency. In some stools these are very numerous. These, if in any number, point directly to poor gastric digestion, for connective tissue is digested only in the stomach.

2. Undigested pieces of muscle are often

seen as small brownish masses that are soft and easily torn apart. These point to poor proteid digestion in the intestine.

3. Small pieces of potato are frequently seen and are readily recognized.

4. The fatty stool is apparent by the glossy appearance and the light color.

5. Slime is recognized by the tenacious character and its color. It is only the slime that is intimately mixed with the stool that comes from the small intestine; that from the large intestine or rectum is apt to be seen as a layer on the outside of the stool.

6. Large crystals of magnesium or ammonium phosphate may be seen.

The miscroscopic examination is easily and quickly made by taking a small portion of the stool and preparing three slides. One is a natural specimen covered with a cover-glass and pressed out thin; another has a little Lugol's solution added to it; and to a third a drop of 30 per cent acetic acid, which is heated to boiling after being prepared.

By such a procedure the macroscopic picture is substantiated or some particle recognized that was previously in doubt. The starch is stained blue or black; muscle fibers in small pieces are here and there normally seen but to no great extent; the fat may be seen as soaps, needles, or in neutral drops; the mucus and connective tissue need no such recognition. Of the bacterial flora that is so abundant, the recognition of the clostridium, if present, is probably of the greatest value, owing to its association with intestinal fermentation.

The reaction of a normal stool is neutral. The presence of bile is tested for by adding a rather concentrated solution of $HgCl^2$ to a portion of the stool in water placed in a Petri dish and allowed to stand for twenty-four hours. A reddish color results normally from the hydrobilirubin; green portions or a whole green color is pathologic and due to the unchanged bile (bilirubin).

The fermentation test of the feces as recommended by Schmidt is of practical value. A portion of the feces is placed in a simple fermenting glass apparatus and kept at a temperature of about 100° F. for twenty-four hours. Normally there is no gas produced; if there is a fermentation, due to carbohydrate decomposition, the color becomes lighter, and if due to proteid decomposition, darker. Sometimes there is little or nothing in the stool to cause one to suspect such fermentative change, still by this simple method, it will show plainly. The stool may appear mushy and have the appearance of containing gas on macroscopic examination, but this will show the nature of decompositon, which frequently clears up some rather obscure condition,—the so-called "fermentative dyspepsia" (Gärungs Dyspepsia).

Examination of the dissolved albumin is usually of small importance, though at times is of some value. The examination for occult blood is of value, and easily done.

To carry out the whole procedure is a matter of a few moments' work to one who is accustomed to it, and I am sure that it is well worth the effort in many instances, since by this we are pretty well able to ascertain to what extent the food is being taken care of, not alone in the intestine, but to some extent in the stomach; an instance of this is well illustrated by the connective tissue found in the stool in achylia gastrica. There are cases in which the intestinal digestion is imperfect, in which there is no diarrhea. By this examination one is able to say with little work which part of the digestion is at fault. Not infrequently the stool will show much neutral fat which, according to Schmidt, indicates a disturbed pancreatic secretion; a very important test to corroborate this is the inability of the intestine to digest the nuclei in thymus gland; this he uses by giving a small piece of thymus enclosed in some very thin wide-meshed silk cloth, and sectioning the remaining part after it has been passed. The fatty needles he attributes to imperfect action of the bile on the ingested fats. The presence of undigested starch is apparent under the microscope.

While these examinations do not furnish all the information one might wish, they are of importance, and do often give us material help in "working up" our case. As with all laboratory procedures, they must be considered only as links in the chain, and frequently when the history and physical findings are considered with this work one will be much nearer a conclusion. In some instances the diagnosis can be definitely made by examining the contents alone, but such is rare; e. g., pyloric obstruction. Any procedure that does not rob one of too much time and has a reasonable value in a certain percentage of cases should be utilized, for even when all of our known diagnostic means are exhausted we are too often in the dark.

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HOSPITAL FEES

In the Minneapolis Tribune for Dec. 5, 1911, there was an interesting letter and a reply on the subject of hospital charges. The questioning letter purported to be written by a Minneapolis physician, and in it he asked why it costs so much to spend a surgical week at a hospital. The reply of Dr. A. E. Anderson, treasurer of the Swedish Hospital and Chairman of the House Committee of the Board of Trustees, was a full and convincing explanation of what seemed to be an extraordinary expense, yet, when itemized according to business principles, it left one with the impression that the Hospital was in danger of losing money all the time.

Very few people, physicians among them, realize how much it costs per capita to care for the average patient. Any hospital of repute that gives a reasonable service to the care of the sick must calculate on two dollars per day or fourteen dollars per week, in order to cover actual expenses. As a matter of fact this does not include interest or depreciation on buildings, ground, and equipment, but covers only the absolutely necessary items that each patient must receive. In a well-conducted hospital where everything is charged to the expense account and where the population of the hospital is shifting and variable, the cost per capita must exceed fourteen dollars per week. When a minimum fee of nine dollars is charged for ward patients there is always a deficit, which must be made up from private rooms, special nurses, and other sources of revenue. Not infrequently many ward beds are empty, and all or most of the private rooms are full. Then, and then only, can the hospital managers count on making a nominal profit. On the other hand, when the wards are full and only a few private rooms are occupied, all profits are lost, and the hospital does not meet expenses. In some of the older and popular hospitals in which there is but little variation in the population a profit, usually a small one, may be expected.

Usually, the general hospital under sectarian control, is aided by contributions of cash or equipment, and thus the expense of maintenance is reduced.

The questioner above-mentioned used the following items to illustrate the over-charge: room, two weeks, $32; use of operating-room (17 minutes), $7.50; anesthetic, $2; one small bottle of milk magnesia, $1.35; one-half yard cotton cloth, thin, 50 cents; examination of urine, 50 cents; total, $43.85.

This bill was revised by the hospital authorities by changing two items, namely, medicine, $1.35, dressings, 50 cents. Dr. Anderson explained that the charge for the room at $16 a week included room, board, nurse (day and night as needed), house physician's services, etc. In many cases this may, and usually does, include special care and long-time service by nurses, such as feeding, bathing, administration of necessities, etc. The charge for the use of the operating-room includes the attendance of four salaried nurses, two attendants, instruments, which must be kept in perfect condition, the use of the sterilizing apparatus, rubber gloves, and quantities of the best materials used in surgical dressings, time spent in preparing for the operation, and the renovating of the operating-room thereafter.

The anesthetist, who receives two dollars for his responsible service, should have not less than five dollars, and from that up to twenty-five.

Frequent pathological examinations are made for the patient and usually done without cost, but in our modern hospitals a nominal charge is now made, but it is ridiculous that any one should object to a 50 cent fee for this important work.

The fact of the matter is, that the hospitals do not charge enough for the service they render, and if they expect to make a profit to pay off the usual mortgage that stands against the hospital, the prices must go up. To the uninstructed and to those who have had no practical experience in running a hospital, it would be an object lesson of great value if they would try it. The owners and managers of private hospitals can speak authoritatively, and from bitter experience. They can tell of years of waiting and years of expense before the income is sufficient to keep the institution clear of debt. Not infrequently, the physician or surgeon who proudly boasts of his "private hospital" will privately tell you that it is a burden and expense, and that he pockets his pride while his pocket is drained to maintain his luxury.

WHY JOIN A MEDICAL SOCIETY?

The fact that from ten to forty per cent of the medical men in some states do not join their county and state societies apparently indicates that there are reasons for this state of affairs.

Is it because they cannot gain admittance on account of their known or suspected unprofessional conduct or is it from sheer indifference to medical progress? A good medical society is made up of quality, rather than quantity, in membership, but it is expected that the majority of doctors are sufficiently progressive in their ideas that they can see the advantages that come to organized bodies of medical men associated for a common purpose, namely, that of advancement.

Medical education has improved, in recent years, to such a degree that it has raised the intellectual grade of medical men tremendously. If this be true, why do so many medical men remain outside of medical societies? There are many reasons why every right-thinking physician should join a society. The man who decides upon a medical career and who becomes a graduate in medicine becomes at once a servant of the people. He has something to give and something to sell, and if he expects to find employment he must compete mentally with his brother physicians. It is one of the business maxims of business men to get together, to compare notes, to share in discussions, and to obtain new ideas from their associates and competitors. The same maxim applies with equal force to a body of physicians, but from a different viewpoint.

The man who stands aloof or who considers himself superior in ideas or attainments to his fellow worker, is standing upon a shaky foundation, which will some day fail to support him in an emergency. In order to render skillful service he must be ever ready to profit by the experience of others. His work is to preserve both the health and the life of his patients.

As civilization advances there are greater demands for expert advice and training. Responsibilities are crowded on the man of knowledge and experience. The measure of his value in dollars and cents cannot be estimated by the average on-looker, and no conscientious physician will ever be satisfied unless he gives to his fellow man the best that is possible to himself. To prepare himself for his future life-work he must attend the best medical school within his means and follow this with hospital and post-graduate work at home or abroad. He is then on the threshold of his professional career. The next few years really determine the man, his capacity, and his standing in his community. He has made a substantial investment, and he must look sharply after the interest that is due him.

The amount of interest depends upon his efficiency, his willingness to work, and his continued willingness to learn from his own experience and the experience of others. If he joins a medical society where he comes in contact with progressive thinkers and workers he is stimulated to keep abreast with his associates, he hears of recent medical literature, he has access to libraries and laboratories, and he learns, in various ways, how to work, how to lessen his anxieties, and how to discard the obsolete for the safe and sane methods of treatment. He also learns that his fellow worker has a human side which he has not seen before, and thus he grows in the culture and refinement that are essential to his own advancement. Incidentally, he learns the business side of his profession, or he may instruct others or help others in the same way.

He also finds that his association with other medical men teaches him to read better things, to write of his experiences, and to talk coherently and concisely on medical topics.

The code of ethics becomes a broad and helpful aid to him when he sees it applied to a body of men in contact with the wider world. It gives him higher ideals and teaches him tolerance to the faults of lay and medical men.

The outsider may come into the medical society in a scornful attitude of mind, but if he is a *real* physician he soon appreciates that there are other medical men who have gained wisdom by personal contact with, and a better understanding of, their confreres, and who have discovered that there are those who read intelligently, who investigate problems scientifically, and who observe with a clear understanding.

The untutored man who flaunts his impoverished ideas upon a medical society soon discovers that he has over-rated himself, and he humbly takes the seat that finally leads to better company.

There are many more reasons why a man should join a medical society, but the chief may thus be summarized briefly: broader acquaintanceship, good fellowship, a receptive mind for information gleaned from others, a knowledge of how to read, write, and speak intelligently, improved business methods that insure a substantial return on an early investment, and the knowledge that each member of a medical society may be a man among men, and a leader and helper in the community in which one's lot is cast.

THE PURE-MILK PROBLEM

We note with pleasure that the Minneapolis Health Commissioner will publish in the newspaper a monthly report of tests made of the milk sold in the city. The first of such publications, which was the annual report of Dr. J. Frank Corbett, the City Bacteriologist, appeared recently. It showed a bacterial count of 100,000 or less in the milk from 18 dairies; of 100,000 to 200,000 in the milk from 24 dairies; of 200,000 to 300,000 in the milk from 41 dairies; of 300,000 to 500,000 in the milk from 52 dairies; of 500,000 to 1,000,000 in the milk from 49 dairies; and of more than 1,000,000 in the milk from 33 dairies.

It would probably not be fair to draw conclusions from these figures at the present time, for enough samples were not obtained from every dairy to determine the output of such dairy under the present conditions which a more rigid enforcement of the law have brought about; yet the figures are significant.

As we have advocated that proper credit should be given men who are striving to maintain a high quality in their milk, we cheerfully call attention to what we consider a very remarkable result obtained by one dairy in Dr. Corbett's list.

The milk from the dairy of Mr. L. A. Engvell, of St. Louis Park, a suburb of Minneapolis, shows a count of 46,500, the lowest in the list, and this count is the average of 36 samples. But the most interesting and instructive feature of this result lies in the fact that Mr. Engvell is working under such conditions as obtain in the ordinary dairy: He has none of the expensive appliances that are usually deemed essential to produce milk with a bacterial count of 100,000 or less. He has accomplished this splendid result simply by the vigilance of himself and members of his family who assist in the conduct of his dairy.

We believe that every family should insist on a bacterial count of less than 300,000 in milk for general family use, and on a count of 100,000 or less in milk for children; and we further believe that a fair extra price should be paid for milk with a count much below 150,000, and certainly for milk with a count below 100,000.

We will gladly mention in our columns the names of all dairymen delivering, in any city of the Northwest, milk with a count of 100,000 or less, if such count is based upon a sufficient number of samples to show that the dairy is doing permanently good work.

All dairies in Minnesota will hereafter be inspected, perhaps twice a year, by State inspectors, and this, added to the bacteriological count, will do much to improve the milk suuply.

THE NEW PUBLIC HEALTH

We begin in this issue the publication of a series of ten or twelve papers on "The New Public Health," and this first paper states their purpose very admirably.

Advance proofs of these papers will be sent to about a thousand newspapers in the Northwest, in order that, through this source, the public may be informed as to how contagious diseases are spread and how they may be wholly prevented.

Our readers can do the public a real service by discussing these papers with the editors of their local papers, and aiding them to put this information before the people.

The secretaries of the State Boards of Health of North and South Dakota have expressed their cordial approval of this undertaking, and they will do all they can to make it a complete success.

ERRATA

The following corrections should be made in Dr. Hill's paper on Smallpox, which appeared in our last issue:

Page 3, Col. 2, line 31, strike out first *crenated*.

Page 6, Col. 2, line 7, change *not* to *often*.

Dr. Hill has done sufficient editorial work to have acquired the illegible handwriting said to be common to all "great editors," but he seems not to have acquired the wisdom not to make marginal proof-corrections in such handwriting.

BOOK NOTICES

Golden Rules of Pediatrics. By John Zahorsky, A. B., M. D. Price $2.50. St. Louis: C. V. Mosby Company, 1911.

This small volume of 254 pages is undoubtedly full of golden rules. The mistakes most commonly made by the practicing physician are prominently emphasized. No feature which could aid in diagnosis seems to be overlooked.

In a general way, the most advanced views of modern pediatrics, both at home and abroad, are expressed.

The classification of alimentary disturbances is not at all clear.

The chapter on artificial feeding, as usual in our American texts, shows a complete lack of appreciation of the best things Continental literature has given us on this subject.

There is a short chapter on therapeutic measures, and the usual favorite formulary of the author.

The index is quite complete. A book like this undoubtedly has its value, and the practitioner will turn to it more readily than to his more voluminous compendia.

Practical Cystoscopy and the Diagnosis of Surgical Diseases of the Kidneys and Urinary Bladder. By Paul M. Pilcher, A. M., M. D., Consulting Surgeon to the Eastern Long Island Hospital; Late Surgeon to the German, Seney and Samaritan Hospitals of Brooklyn, N. Y.; Associate Surgeon to St. John's Hospital of Brooklyn; Attending Cystoscopist to the Jewish Hospital of Brooklyn. Cloth $5.50 net; pp. 398, with 233 illustrations. Philadelphia: W. B. Saunders Company, 1912.

This elaborate and profusely illustrated book is probably the most complete and best treatise on cystoscopy in the English language. The author describes the many various types and makes of instruments, commenting upon their excellences and flaws. The indications for the use of the cystoscope are stated, and the technic of the various procedures outlined in the minutest detail, including the avoidance of possible difficulties and the methods of overcoming them when encountered.

The diagnosis of the diseases of the bladder, prostate, ureters, and kidney are all separately taken up, the clinical picture, symptoms, cystoscopic findings, direct and differential diagnosis, and the indications for treatment being taken up in each section.

The book is worthy to be most highly commended and recommended.

Manual of Cystoscopy. By J. Bentley Squier, M. D., Professor of Genito-urinary Surgery New York Post-Graduate Medical School and Hospital; and Henry G. Bugbee, M. D., Instructor in Genito-urinary Surgery, New York Post-Graduate Medical School and Hospital. Leather, $3.00; pp. 117; nineteen colored plates and numerous illustrations. New York City: Paul B. Hoeber, 1911.

This book is a short practical manual of cystoscopy, intended for the student and beginner. The material is presented in a very concise form, and has a place as an introduction to the subject of cystoscopy, but, because of its incompleteness, it has a limited usefulness.

General Medicine, Vol. 3 of Practical Medicine Series for 1911. By Casey Wood, M. D., Albert A. Andrews, M. D., and Gustavson Head, M. D. The Year Book Publishers, Chicago.

This number of the Practical Medicine Series constitutes a valuable review and compendium of the year's literature and progress in these branches of medical science. The extent of the field, and the vast amount of its literature yearly, make the compilation of such a volume increasingly difficult. The editors are consequently to be congratulated upon the nice discrimination with which they have chosen articles and subjects for notice and review. With very few exceptions they have used their limited space to the best advantage.

LIBRARY MAR 1 1916

NEWS ITEMS

Dr. A. Lanoue, of Mendota, has moved to Pierz.

Dr. W. J. Hewson has moved from Nashwauk to Adrian.

Dr. A. A. Husser, of Berthold, N. D., has moved to Santa Ana, Calif.

Dr. W. D. Hammond, of Spokane, Wash., has located in Breckenridge, Minn.

Dr. G. A. Worley, of Crookston, is in New York doing post-graduate work.

Dr. Owen McKeon, of St. Paul, has returned from a six months' trip to Europe.

Dr. G. H. Rathburn has moved from Belle Fourche, S. D., to Watertown, S. D.

Dr. E. A. Pray, of Valley City, N. D., is in Philadelphia doing post-graduate work.

Dr. Justus Ohage, Jr., has been appointed bacteriologist in the State Main Laboratory.

Dr. A. L. Kuski has moved from Sandborn to Minneapolis and has offices at 401 West Lake St.

Dr. S. C. Schmitt, of Mankato, has moved to Minneapolis and has offices at 1501 E. Lake St.

The Bethesda Hospital Association, of New Ulm, has been organized with a capital of $75,000.

Drs. Cremer, Haessly, McGuigan and Clayton is the name of a new firm of physicians in Red Wing.

Dr. L. A. Lane has moved from Minneapolis to Northfield to take the place of the late Dr. Pringle.

The office of U. S. assistant surgeon at St. Paul has been abolished because of a lack of sufficient work.

Dr. J. Frank King has moved from Grand Forks, N. D., to St. Thomas, N. D., where he formerly practiced.

The Wittenburg Hospital, at Williston, N. D., was opened last month. The hospital will accommodate twenty-four patients.

Dr. C. H. Mayo has returned to Rochester from New York where he was operated on last month. He has quite fully recovered.

Dr. John M. Blackford, of the Mayo staff, Rochester, was married last month to Miss Elizabeth Jackson Mann, of Baltimore, Md.

Dr. E. L. Tuohy has resigned as bacteriologist of the Duluth branch of the State Laboratory. Dr. Martin, of Minneapolis, will take the position.

In a short time stations for the free distribution, by the State, of diphtheria antitoxin, will be located in almost every city and village in Minnesota.

Mr. C. A. Robinson, who has been the manager of the Twin City branch of Parke, Davis & Co. for the past twenty years, has resigned his position.

Dr. H. M. Bracken, executive officer of the Minnesota State Board of Health, will spend three months in Europe investigating health problems.

Dr. A. A. Noyes, of Mason City, Iowa, has retired from practice at the age of 89, with the record of being the oldest practicing physician in the country.

Gov. Eberhart, of Minnesota, recently appointed Dr. D. L. Scofield, of Benson, a member of the Advisory Commission of the Sanatorium for Consumptives.

Dr. E. B. Hoag, of the University of California, will come to Minnesota next summer to speak in all parts of the state on medical inspection in schools.

Dr. A. W. Jones, of Red Wing, has been appointed physician of the State Training-School at that place to fill the vacancy caused by the death of Dr. Jaehnig.

Mankato is to have its branch laboratory, the State Board of Health having granted it at last week's meeting. Dr. C. C. Chesley, of Minneapolis, will be in charge of it.

The Pierce County Medical Society of Wisconsin met at Ellsworth, Wis., last month. Dr. M. H. Cremer, of Red Wing, read a paper on "Diseases of the Gall-Bladder."

Dr. H. S. Willson, of Crystal, S. D., has taken Dr. R. A. Scott, formerly of Cavalier, N. D., into partnership. Dr. Willson and wife will spend four or five months in Oregon and California.

Dr. E. G. Sasse, of Bear Creek, Mont., has purchased a half interest in the Lidgerwood (N. D.) hospital and become associated with Dr. Shields at that place under the firm name of Drs. Shields & Sasse.

Dr. Edward S. Wood, of St. Paul, died on Jan. 9th, at the age of 51 years. Dr. Wood was a graduate of McGill. Dr. Wood was a specialist in eye, ear, nose and throat work, and had practiced in St. Paul nearly twenty years.

Dr. B. J. Merrill, of Stillwater; Dr. C. W. More, of Eveleth; and Dr. W. A. Jones, of Minneapolis, have been re-appointed by Gov. Eberhart members of the State Board of Health. Dr. Jones was re-elected chairman of the Board.

Dr. T. F. McKey, of Albert Lea, died the last day of December at the age of 49 years. Dr. McKey had practiced in Washington, South Dakota, and Minnesota. He was a graduate of the University of Iowa and spent two years in post-graduate work at Rush.

The Stark County Society of North Dakota met at Dickinson, N. D., last month. The following were elected officers: President, Dr. V. H. Stickney, Dickinson; vice-president, Dr. G. A. Perkins, Dickinson; secretary and treasurer, Dr. R. H. Beach, Dickinson; delegate, Dr. O. C. Maercklin, Dickinson.

The annual meeting of the Blue Earth County Society was held in December at Mankato. Officers were elected as follows: President, Dr. C. J. Holman, Mankato; vice-president, Dr. C. E. Bigelow, Madison Lake; secretary, Dr. Jane Hughes, Mankato; treasurer, Dr. Lida Osborn, Mankato; delegate, Dr. A. G. Liedloff.

The Minnesota State Board of Health will build a portable hypochlorite plant in order to treat the water of any place in the state where typhoid fever breaks out. A permanent plant of this kind reduced the typhoid death-rate in Minneapolis the moment it was put into operation, and now very few cases in the city can be traced to the city water.

Dr. Bruno Jaehnig, of Red Wing, died last month at the age of 70 years. Dr. Jaehnig was born in Dresden, Germany, in 1841, and came to this country in 1850. He graduated from the University of Michigan in 1864, and came to Red Wing in 1869. He was physician at the State Training-School from 1892 to the time of his death.

An open-air school for tubercular children is under consideration by the Duluth Board of Education. Such a school will no doubt be opened there when sufficient funds are available. Twenty-one schools are now under medical inspection in that city, and the remaining twelve will receive occasional visits from the inspectors.

The Yankton (S. D.) District Society met at Yankton, S. D., last month. Several papers on pneumonia were read and discussed. Officers were elected as follows: President, Dr. G. S. Adams, Yankton; vice-president, Dr. E. M. Morehouse, Yankton; secretary and treasurer, Dr. James Roane, Yankton; delegates, Dr. H. J. G. Koobs, Scotland, and Dr. C. C. Gross, Yankton.

The Rice County Society met at the School for Feeble-Minded at Faribault on Nov. 20th. Dr. F. F. Wesbrook, of Minneapolis, read a paper on "The Trend of Medical Education"; Dr. D. F. Wood, of Minneapolis, read a paper on "Vincent's Angina;" and Dr. A. B. Moulton, of Faribault, read one on "Laboratory Work at the School for Feeble-Minded." Dr. H. R. Smith, of Faribault, was elected a member.

Dr. H. P. Sawyer, of Goodhue, will spend the winter in California, and he may locate there permanently. Dr. Sawyer has practiced nearly twenty years in Goodhue, and has gained the love of a very large circle of friends and patients. A local paper says of Dr. Sawyer, "First of all, he is a gentleman, mannerly, sympathetic, well-informed and close-mouthed, and therefore his very presence inspired confidence."

The Fourth District Society of South Dakota met at Pierre, S. D., last month. Two strong resolutions were passed, one condemning contract practice and the other lodge practice. The members of the Society pledged themselves not to countenance either. A fee-bill was formulated and will be published. Officers were elected as follows: President, Dr. N. B. Gearhart, Pierre; vice-president, Dr. J. M. Walsh, Fort Pierre; secretary-treasurer, Dr. H. T. Kenney, Pierre.

PRACTICE FOR SALE

General practice in a Minnesota city of over 6,000 population, two railroads, prosperous agricultural community. Offices well located; equipment worth over $1,000. I am leaving to enter special field and will sell for price of equipment. Doing about $300 a month. Address C. A., care of this office.

PART OF A MINNEAPOLIS OFFICE FOR RENT

After January 15th I will rent to a general practitioner office room for certain hours; modern downtown office. Address L. M., care of this office.

FOR SALE

An unopposed practice in a good live village in southern Minnesota. Nearest competition 13 miles away. I have been located here 11 years and have a good practice. Expect to move to a larger town. $800 will make the deal. Address P. C., care of this office.

LOCATION WANTED

In North Dakota or Minnesota a practice of not less than $3,500 is wanted by young, capable physician, single, with first-class references and experience. Will consider partnership or assistantship to older retiring physician or will assume practice of physician about to leave for a year with partnership view. No investment at present. Kindly give full particulars. Address H. C., care of this office.

Doctor: If you want practical post-graduate work during fine season in the delightful city, write for particulars. New Orleans Polyclinic, P. O. Box 797, Post-graduate Medical Dept., Tulane University of La.

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF MINNESOTA FOR THE MONTH OF OCTOBER, 1911

REPORTED FROM 82 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES.	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia
Ada	1,253	1,432	0													
Albert Lea	4,500	6,192	3			1										1
Alexandria	2,681	3,001	2	1												
Anoka	3,769	3,972	0													
Austin	5,474	6,960	4											1		
Barnesville	1,326	1,353	0													
Bemidji	2,183	5.099	7										2	1		
Benson	1,525	1,677	0													
Blue Earth	2,900	2,319	3													
Brainerd	7,524	8,526	8	1											1	1
Breckenridge	1,282	1,840	1										1			
Canby	1,100	1,528	2													
Cannon Falls	1,239	1,385	0													
Chaska	2,165	2,050	*													
Chatfield	1,426	1,226	0													
Cloquet	3,074	7,031	1													
Crookston	5,359	7,559	9	2			1									
Detroit	2,060	2,807	3										1			
Duluth	52,968	78,466	52	7	1	4	1					1		5	7	1
East Grand Forks	2,077	2,533	1													
Ely	3,572	3,572	4			1										
Eveleth	2,752	7,036	2											1		
Faribault	7,868	9,001	2													
Fairmont	3,440	2,958	1													
Fergus Falls	6,072	6,887	10	1	1								2	2		
Glencoe	1,788	1,788	2												1	
Granite Falls	1,454	1,454	0													
Hastings	3,811	3,983	5	1		2										
Hutchinson	2,495	2,368	1													
International Falls		1,487	3											2		
Jordan	1,270	1,151	1			1										
Lake City	3,142	3,142	3			1									1	
Le Sueur	1,937	1,755	0													
Litchfield	2,280	2,333	2											1		
Little Falls	5,774	6.078	0											1		
Luverne	2,223	2,540	0													
Madison	1,336	1,811	2										1			
Mankato	10,559	10,365	9	1									1			
Marshall	2,088	2,152	2													
Melrose	2,591	2.591	1			1										
Minneapolis	202,718	301,408	238	26	2	14	8	1			2		5	12	25	
Montgomery	979	1,267	1												1	
Montevideo	2,146	3.056	4			1								2		
Moorhead	3,730	4,840	7										1	2		
Morris	1,934	1,685	0													
New Prague	1,228	1,554	1													
New Ulm	5,403	5.648	2													
Northfield	3,210	3,215	5											1		
Ortonville	1,247	1,774	0													
Owatonna	5,561	5,658	7		1	1									1	
Pipestone	2,536	2,475	4			1										
Red Lake Falls	1,666	1,666	1													
Red Wing	7,525	9.048	11	1											2	
Redwood Falls	1,661	1,666	2	1											1	
Renville	1,075	1,182	0													
Rochester	6,843	7,844	23	2												
Rushford	1,100	1,011	0													
St. Charles	1,304	1,159	0													
St. Cloud	8,663	10,600	10	1										2	1	
St. James	2,102	2,102	1													
St. Paul	163,632	214,744	174	21	2	10	4	2					2	9	21	
St. Peter	4,302	4,176	2			1										
Sauk Centre	2,154	2,154	0													
Shakopee	2,046	2,302	3												1	
Sleepy Eye	2,046	2,247	2													
South St. Paul	2,322	4,510	4	1												
Staples	1,504	2,558	1											1		
Stillwater	12,318	10,198	11	1	1									1	1	
Thief River Falls	1,819	3,174	3												1	
Tower	1,111	1,111	1												1	
Tracy	1,911	1,826	0													
Two Harbors	3,278	4,990	9	1												
Virginia	2,962	10,473	6			1								3		
Wabasha	2,622	2,622	5													
Warren	1,276	1.613	2													
Waseca	3.103	3,054	3													
Waterville	1,260	1,273	0													
West St. Paul	1,830	2,660	4													
Willmar	3,409	4,135	1	1												
Winona	19,714	18,583	18	5							1			1		
Winthrop	813	1,043	2													
Worthington	2,386	2,385	3													

REPORTED FROM 54 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia
Adrian	1,258	1,112	0													
Aitkin	1,719	1,638	0													
Akeley			1													
Appleton	1,184	1,221	1											1		
Belle Plaine	1,121	1,204	0													
Biwabik		1,690	1			1										
Bovey		1,377	0													
Browns Valley	721	1,058	0													
Buffalo	1,040	1,227	1													
Caledonia	1,175	1,372	3		1											
Cass Lake	546	2,011	1	1												
Chisholm		7,684	6			2								1		
Coleraine		1,613	0													
Dawson	962	1,318	2					1								
Delano	967	1,031	1													
Farmington	733	1,024	0													
Fosston	864	1,055	0													
Frazee	1,000	1,645	2										1			
Glenwood	1,116	2,161	0													
Grand Rapids	1,428	2,239	5			1					1				1	
Hibbing	2,481	8,832	11										1	2	1	
Jackson	1,756	1,907	3													
Janesville	1,254	1,173	2													
Kenyon	1,202	1,237	2													
Lake Crystal	1,215	1,038	4													
Long Prairie	1,385	1,250	0													
Madelia	1,272	1,273	0													
Milaca	1,204	1,162	1													
Mountain Lake	959	1,081	2		1											
Nashwauk		2,080	0													
North Mankat	939	1,279	1													
North St. P	1,110	1,404	0													
Osakis	917	1,013	0													
Park Rapids	1,313	1,850	0													
Pelican Rapids	1,033	1,019	0													
Perham	1,182	1,376	0													
Pine City	993	1,258	1		1											
Plainview	1,038	1,175	1													
Preston	1,278	1,193	1													
Princeton	1,319	1,555	2	1												
St. Louis Park	1,325	1,743	0													
Sandstone	1,189	1,818	0													
Sauk Rapids	1,391	1,745	2													
South Stillwater	1,422	1,343	0													
Springfield	1,511	1,482	3													
Spring Valley	1,770	1,817	2													
Wadena	1,520	1,820	0													
Wells	2,017	1,755	2												1	
West Minneapolis	2,250	3,022	1													
Wheaton	1,132	1,300	0													
White Bear Lake	1,288	1,505	0													
Windom	1,944	1,749	2													
Winnebago City	1,816	2,555	1													
Zumbrota	1,119	1,138	1													
STATE INSTITUTIONS																
Fergus Falls, Hospital for Insane			7	1												
Rochester, Hospital for Insane			5													
St. Peter, Hospital for Insane			10	2		1										
Anoka, Asylum			5												1	
Hastings, Asylum			2													
Faribault, School for Deaf																
Faribault, School for Blind																
Faribault, School for Feeble Minded			3			1										
Owatonna, School for Dependents																
Stillwater, State Prison																
St. Cloud, State Reformatory																
Red Wing, State Training School																
Minneapolis, Soldiers' Home			9												1	
OTHER PARTS OF STATE			613	61	12	29	8	3	1	....	5	5	13	43	42	2
Total for state			1442	141	23	76	22	7	1		9	6	34	95	122	5

*No report received. **Registrar** not doing his duty.

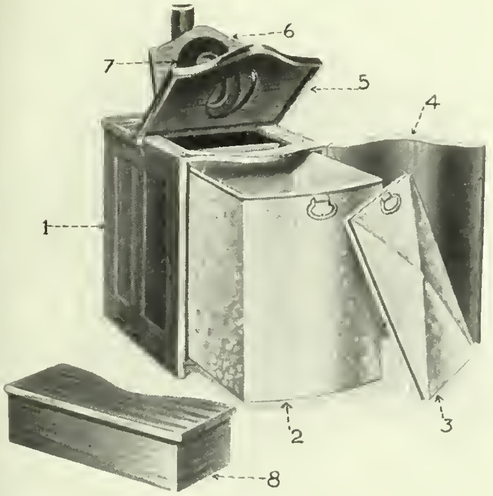
175 stillbirths and premature births not included in above totals.

PUBLISHER'S DEPARTMENT

A PROBLEM CONSTANTLY GROWING GREATER

The problem of the disposal of human excreta in the absence of a water and sewerage system is far greater today than ever before, for we are just learning that all contagious diseases are conveyed from person to person through human excreta, as Dr. Hill, the epidemiologist of the Minnesota State Board of Health, points out in this issue of The Journal-Lancet. The problem has apparently become so difficult that many have ceased to think of it, and content themselves by going on in the old way, retaining the obnoxious and dangerous privy vault.

The U. S. Government has made exhaustive researches along this line, and the result is that the wet closet is approved and recommended.



THE CABINET CLOSET

The Rex Sanitary Closet Co. of Minneapolis manufactures the best wet closet put upon the market, either for the residence, school-house, jail, or any large institution.

They manufacture a very attractive cabinet closet for residence use, which may be connected with a chimney or vent-flue, and thus remove any vestige of odor. The cut herewith shows the cabinet closet.

This company has found a disinfectant which is at once powerful and well-nigh odorless, and with almost any degree of care the cabinet can be used in the bath-room and be wholly unobjectionable.

This system in the school-house and other public buildings removes all danger of the spread of disease, and may be kept as cleanly as any closet with a water and sewerage system. It has been used so extensively that it is wholly out of the realm of speculation.

Physicians who find the need of such a closet, for either private or public use, are invited to correspond with the Company. Every claim of the Company is backed by absolute guarantees, and no one need fear that they make extravagant claims or statements.

For full information upon any point along sanitary lines in this direction, address The Rex Sanitary Closet Co., 511 Plymouth Ave., Minneapolis.

THE ABBOTT HOSPITAL

The so-called "overhead charges" of the modern hospital have been made so large by the luxurious needs of even the plain people and by the demands of modern medicine and surgery for absolute cleanliness, in a thousand ways, that the small hospital can no longer be built and conducted profitably as a mere business enterprise, and yet only in the comparatively small hospital can the conditions of the home be maintained in any considerable degree. Such hospitals will be built and maintained, but it will be done by private endowment from our successful business men.

The new Abbott hospital of Minneapolis is the first, we believe, in the Northwest to be built under the conditions named. It is only a 30-bed hospital, but it is a model in every respect. Its heating and ventilating plant, and complete laundry, diet kitchens, electric elevators, two complete operating-rooms, sun-porches, absolutely fire-proof construction, beautiful exterior and interior finish, and every possible equipment that Dr. Abbott and a first-class architect, Mr. Wm. Channing Whitney, could learn of or could design, would have made its cost prohibitive except for the carte blanche of its generous donors, Mr. and Mrs. William H. Dunwoody, who, as an act of kindness to a life-long friend, Dr. A. W. Abbott, and, in part, to meet a real public need, erected this complete and beautiful building and gave it the name of such friend.

The cut of the building herewith is quite inadequate to show the graceful lines and the actual size of the structure.

The Abbott hospital is a semipublic institution for both surgical and medical cases, and its charges are made very moderate. Dr. Abbott is the chief surgeon, and he has an able staff of men who have established reputations in the medical world.

The building is located at Eighteenth Street and First Avenue South, one block from the Nicollet Avenue cars.

THE MILWAUKEE SANITARIUM

This Sanitarium was founded in 1884, and for over a quarter of a century has been considered one of the highest-grade institutions in the West. Dr. Richard Dewey, its physician in charge, is an alienist well known at home and abroad. The buildings of the institution are modern and attractive, and they are located in a 26-acre tract of lawn and forest. It is located at Wauwatosa, a suburb of Milwaukee.

Dr. Dewey will be pleased to correspond with any physician who desires information about the sanitarium.

THE HALLADEN-LUX COMPANY

The above Company, which is located in Minneapolis, manufactures a line of appliances of special interest and value to physicians and surgeons, including vulcanized fibre limbs (of their own invention), orthopedic appliances, elastic surgical goods of all kinds, trusses of every description, and surgical instruments.

The Company is composed of men who are specialists in their line, and are entirely reliable.

THE DUKE SCHOOL FOR STAMMERERS

Physicians well know that both physical and psychological causes lie back of stammering and other speech-defects, and they know also that no mere novice can cure such defects; in fact, it requires a high order of ability to do so.

A few years ago Mr. Wald. M. Duke came to Minneapolis to treat such cases and to found a school for stammerers. It took him but a short time to gain the confidence of many professional men, for he at once demonstrated his ability to do such work in this line as is rarely seen outside of the European schools. Mr. Duke now conducts an institute—a home school—where he carries on his work with uniform success, and he enjoys the confidence of physicians, professors at the State University, the Board of Education, and many business men. He is both honorable and reliable, and is worthy of the highest commendation. No better man in his line of work can be found anywhere.

He invites correspondence from physicians who have cases of defective speech. For his school circular and other information, address Wald. M. Duke, 1800 Third Ave. So., Minneapolis.

ABDOMINAL SUPPORT IN PREGNANCY

The wisdom of supporting the abdomen during the late stages of pregnancy and occasionally from the very beginning, is becoming more generally recognized. The advantages have been conclusively demonstrated, not alone by assuring greater comfort, but quite as substantially by the prevention of many of the disagreeable and more or less serious complications of pregnancy traceable to abdominal sagging. The large amount of thought that has been given to the proposition is shown by the development of special forms of support. Unquestionably any measure or appliance approaching closest to everyday customs and requiring the least possible change in a patient's usual manner of dress, deserves special consideration. To the painstaking medical man the Storm Binder is bound to present a special appeal. Careful scientific study of the anatomical requirements are reflected in this splendid maternity supporter, and the physician is bound to commend the effective support afforded without forcing a woman to wear an unnatural and unpleasant apparatus.

The Storm Abdominal Binder solves a most important problem and the benefits obtained from its use show how perfectly adapted it is to the necessarily exacting needs of the pregnant female. The comfort that attends its use is a feature second only to the complete support it constantly gives. Limited space prevents elaboration of the many important and interesting facts connected with the Storm Binder, and every physician who is interested in promoting the welfare of his pregnant patients should send forthwith for full description of the Storm Binder.

CHRONIC BRONCHITIS

Chronic bronchitis in the judgment of French medical authorities is best treated by creosote in combination with phosphate of lime. This ideal preparation is known as The Pautauberge Solution. It is not alone a most valuable remedy in the treatment of all forms of bronchitis, but is invaluable as a prophylactic against consumption, which insidious disease so frequently follows. George J. Wallau, Incorporated, New York.

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THE
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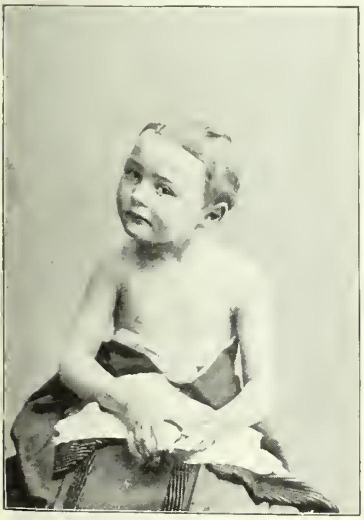
DEFORMITIES OF THE NECK*

By Reginald H. Sayre, M. D.
Professor of Orthopedic Surgery in the University and Bellevue Hospital Medical College
NEW YORK

When your program committee did me the honor to ask me to address this Association, they requested me to select some orthopedic subject which would be of interest to the general practitioner, and I have therefore chosen deformities of the neck, as it has been my fortune to have encountered a number of such cases in which mistakes in diagnosis had been made, and several in which a correct diagnosis was not followed by correct treatment; and so it seemed worth while to bring this subject to your notice.



ig. 1. Ordinary type of torticollis—front view.

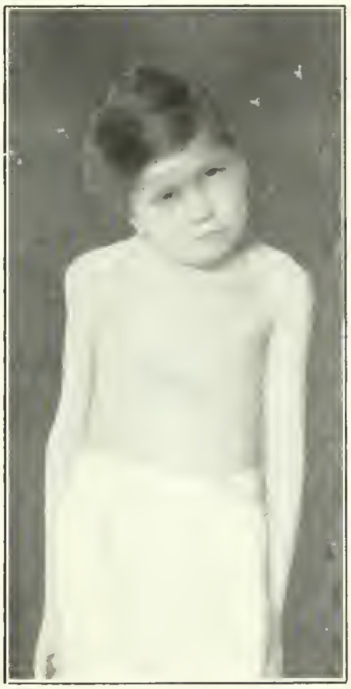


Fig. 3. Congenital torticollis with fusion of cervical vertebræ, and presence of cervical ribs.

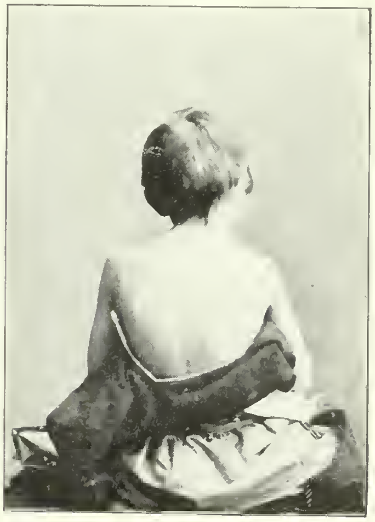


Fig. 2. Ordinary type of torticollis—rear view.

Let us begin with torticollis. Torticollis, or wryneck, is a more or less vague term that describes a deformity of the body which may be produced by a great variety of causes.

Torticollis may be divided into *congenital* and *acquired,* and while in the past the existence of the first variety has been questioned by some writers, who averred that all these cases were caused by violence inflicted at the time of birth, there are many cases on record where there is not the least doubt that the deformity was the result of causes acting *in utero.* Just what these causes are may be open to question, and it is probable that there is more than one cause in many of the cases. The theory that a lack of amniotic fluid is the responsible agent has had its advocates, and others, again, insist that lateral pressure against the pelvic walls is the primal cause, while many hold, and with much logic to help them, that a defect of the central nervous system is responsible for the unsymmetrical development of the two sides of the neck. These congenital cases are often accompanied by various abnormalities of growth. The skull often shows unilateral atrophy, such as is seen late in life in the acquired cases, and we sometimes see fusion of various cervical vertebræ, and the presence of cervical ribs is sometimes encountered.

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*Oration in Surgery, delivered before the Minnesota State Medical Association at St. Paul, Minnesota, October 5, 1911.

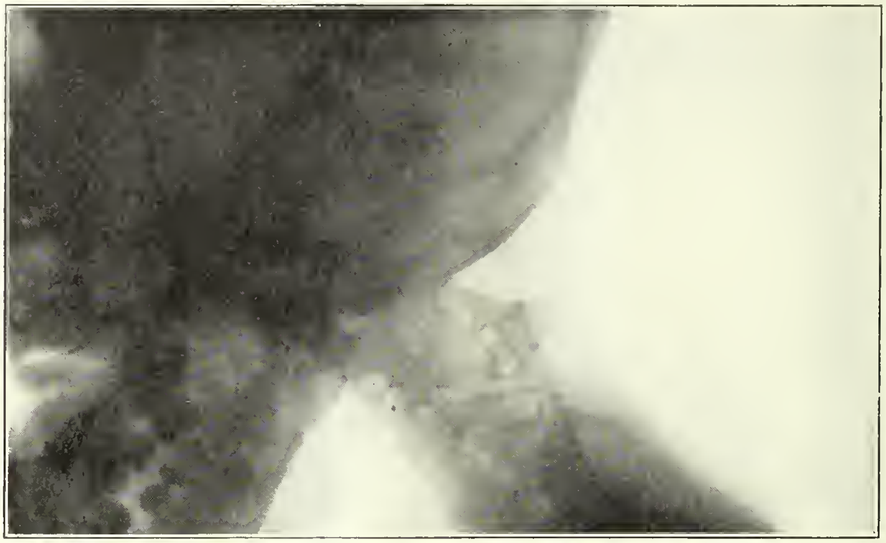

Fig. 4. Congenital torticollis. Skiagram showing fusion of vertebræ.

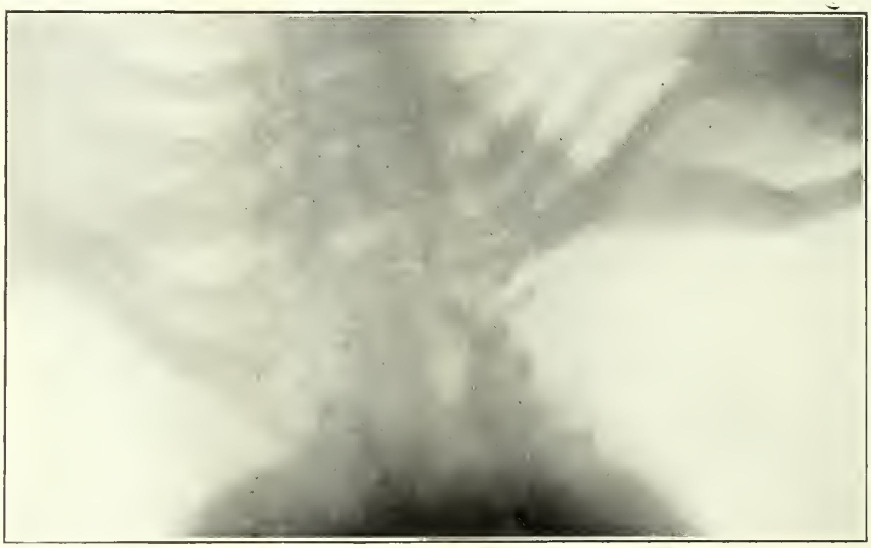

Fig. 5. Skiagram of congenital torticollis showing cervical ribs.

Undoubtedly, some slight cases of congenital torticollis pass unnoticed for some time, but, as the child develops, the rate of growth being unequal on the two sides of the neck, the limitation of motion, due to shortened muscles, and the consequent deformity resulting therefrom, become sufficiently marked to attract attention, and are then supposed to have arisen from some unknown cause, or are ascribed to some trifling intercurrent ailment from which the child may have suffered a short time previous to the discovery of the distortion by the parents.

The cases of acquired torticollis, however, are vastly more frequent than the cases of the congenital variety, and it is among these that we find the great diversity of causes.

An injury at birth, usually of the sternomastoid, is alleged as the exciting cause in many of these cases, a hematoma being produced, which is said to turn into fibrous tissue and cause shortening of the muscles. This theory has been successfully disproved by a number of observers, both by experiments on animals and by the observation of cases, such observation showing that the hematoma often disappeared leaving no torticollis, and that torticollis often developed after injury when no hematoma had been formed.

In other cases, injury to the skin, as in extensive burns with subsequent scar-contraction, causes the torticollis. These cases, occurring in childhood and allowed to persist for years, may give rise later to irremediable deformity, owing to the changes which take place in the shape of the growing cervical vertebræ in consequence of their being retained in an abnormal position for a long period of time.

In some cases a torticollis is secondary to some ocular defect, the head being held in a twisted position, in order to render vision more distinct.

George M. Gould (American Medicine, Vol. VII, No. 13, page 513) details a case of torticollis with subsequent lateral curvature arising from astigmatism occurring at a different axis in the two eyes. The patient discovered that when she was placed by her gymnastic teacher in a proper position with the body and head erect, she could not "see well" and could do so only while bending forward with her head drooped toward her right shoulder. Examination of her eyes had previously been made with the body in the position of deformity, and a cylinder with an axis of 90° applied to each eye to correct the astigmatism. Reexamination with the patient in an erect posture, showed that the astigmatic axis of the right eye was 90° with the head slightly canted to the right, and it was 75° with the head erect. The axis of the left eye was 90°. With her glasses corrected to the axis of her astigmatism, the patient could "see well" only with the head in the erect position, and in consequence the deformity promptly disappeared while wearing the glasses. With the glasses removed, the patient immediately assumed the former position, simulating torticollis.

In another patient the abnormal position of the head was found to be due to the axis of vision of one eye being so far below, and so much to one side of, that of the other that it was only by holding the head in an abnormal position that the visual axes could be fused, and diplopia thus prevented. The patient said that this position of the head prevented him from seeing the ground for some distance in front of him; it also necessitated his holding his book or paper very high. Prisms equal to 6° base down right, axis 100°, fused the two images, added greatly to the clearness of vision and enabled him to hold his head in a normal position.

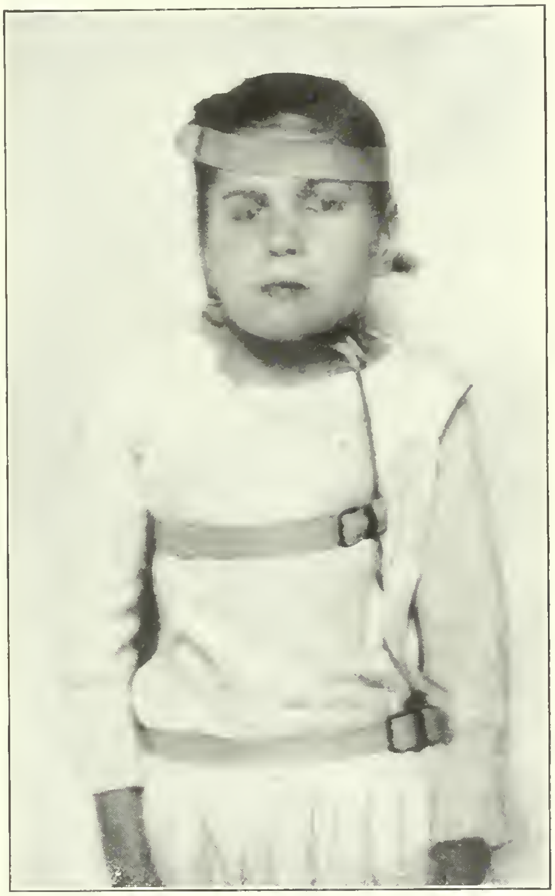
Fig. 6. Bratz support for torticollis.

Deafness may also produce a simulation of torticollis, the patient carrying the head on one side, in order to hear more distinctly.

In other instances a torticollis may have its origin from the occupation of the individual if it tends to keep the head for long periods of time in an abnormal position, and it may induce habit-spasm after the fashion of "writers' cramp," which, affecting the muscles of the neck, produces a torticollis.

Rickets is sometimes the cause of torticollis, the cervical vertebræ bending under the weight of an abnormally large head and giving rise to a deformity, just as the lower extremities may be bent so as to form bow-legs, knock-knees, or anteriorly curved shins.

Paralysis of one or more of the cervical muscles is sometimes the cause of torticollis, although this variety is not frequently encountered.

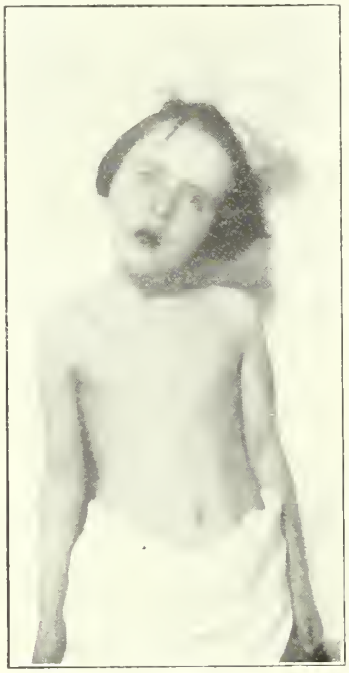

Fig. 7. Inflammation of the upper cervical spine. Metastasis from infected tonsils. Deformity resembles torticollis — front view.

Traumatism is sometimes a cause of torticollis. In fracture of the cervical vertebræ which recover there is frequently enough derangement of the position of the bones to give rise to a torticollis. In one case that came under observation the head was constantly held in the position of torticollis, and when the neck was straightened beyond a certain point numbness came on in the left arm, accompanied by dizziness and faintness, which passed away when the neck was again allowed to droop.

Inflamed glands in the neck may also be a cause of transitory torticollis, and it may be difficult at times to differentiate this variety from that caused by tuberculosis of the cervical vertebræ.

Inflammation of the cervical vertebræ, whether it be tuberculous, syphilitic or caused by a metastasis from an inflamed tonsil or middle ear, gives rise at times to a deformity which may be confounded with the ordinary torticollis.

The deformity in torticollis is practically a rotary lateral curvature of the spine with consequent compensatory curvatures of the dorsal and lumbar spines, which vary according to the shape of the cervical curve, which is determined by the muscles involved. (Figs. 1, 2.)

The spine, from occiput to sacrum, must be regarded as a whole, and we must recognize that the involuntary effort to maintain an upright position inserts secondary compensating curves in the spine whenever a primary curve takes place in any portion of it; and it must also be remembered that these secondary curves, though readily obliterated in the commencement, become permanently fixed through changes in the shape of the vertebræ if allowed to remain for any considerable length of time.

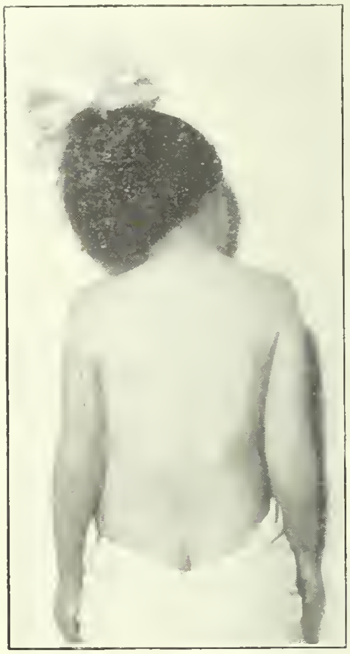

Fig. 8. Inflammation of upper cervical spine. Metastasis from infected tonsils. Deformity resembles torticollis—rear view.

If we have a marked dorsal scoliosis, for example, there is often a compensatory curve in the neck like a torticollis, produced by the involuntary effort to stand erect; and, conversely, when there is a decided torticollis examination of the lower spine will show it to be deformed in the opposite direction.

In some cases there is a long curve like the letter C, taking in a large part of the spine with a slight twist in the opposite direction at both extremities. In others the curve is shorter and crosses the median line like the letter S shortly below the root of the neck.

The treatment of the various kinds of torticollis which I have mentioned, is as varied as the causes that produce the deformity. In some of the congenital cases nothing short of prolonged traction by means of a suspension-swing, such as used for lateral curvature, will help us, combined with the use of some kind of head support to keep the head in the best approximation to a normal position that can be secured. These are the cases where there is decided bone change and perhaps little contraction of muscles. In one such case, where there are present some cervical ribs and a skiagraph shows the upper cervical vertebræ to be fused together in a curious fashion, I have employed, with great benefit, the wire splint suggested by Bratz, in 1890. (Figs. 3, 4, 5, 6.) It consists of a piece of wire bent to fit the side of the head, and well padded. The wire passes down in front of the ear, and also behind it to the root of the neck, and then runs down in front of and behind the neck to the opposite shoulder and then down to the waist where it terminates in a belt.

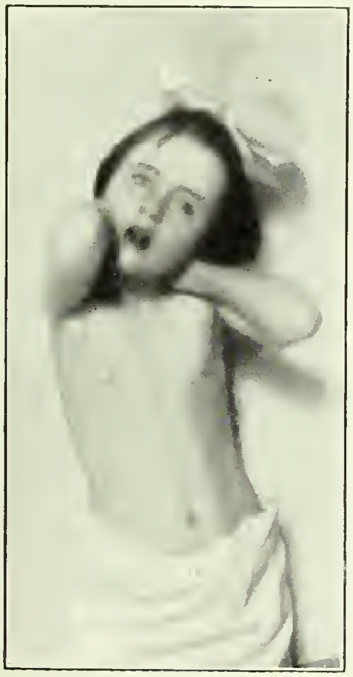

Fig. 9. Position frequently assumed by patients with inflammation of the upper cervical spine, in order to prevent motion and consequent pain in the affected area.

A band of webbing passes around the forehead and another passes around the waist, while a third, passing around the neck, serves to untwist the curve in the latter. This apparatus is of service also in the later stages of cases requiring operation.

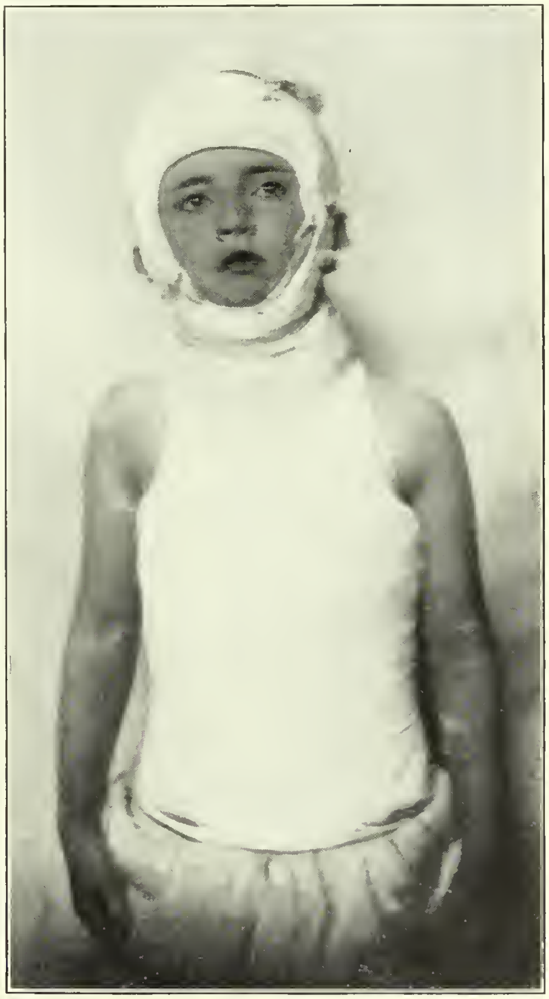

Fig. 10. Plaster-of-Paris jacket and helmet partially finished before the stockinette is reversed.

When we find the deformity due to contracted muscles, the latter must be divided, and we have here the choice between the open and the closed method. Which will be chosen will depend on the case. If the sternocleidomastoid alone be involved, the preference is for subcutaneous section, especially if the patient be a girl. The patient should be placed on the end of a table with a sand-bag under the shoulder, and the head so twisted as to bring the shortened muscles into prominence. The shoulder being held down by an assistant, a blunt-pointed tenotome should then be carried under the sternal branch of the muscle a short distance above the clavicle, and by hugging the posterior surface of the sternomastoid with the blade it will be in safe quarters. The blade should then be turned towards the muscle, and the latter rubbed on the edge of the tenotome rather than move the tenotome very much. After dividing the sternal end of the muscle the clavicular end may then be divided in a similar way. It is alleged that there is great danger of thus injuring the anterior jugular and the subclavian veins by the subcutaneous operation. So far I have not done so, but, in view of the proximity of these vessels to the tendons to be divided, I insist on the use of a blunt, and not a pointed, tenotome.

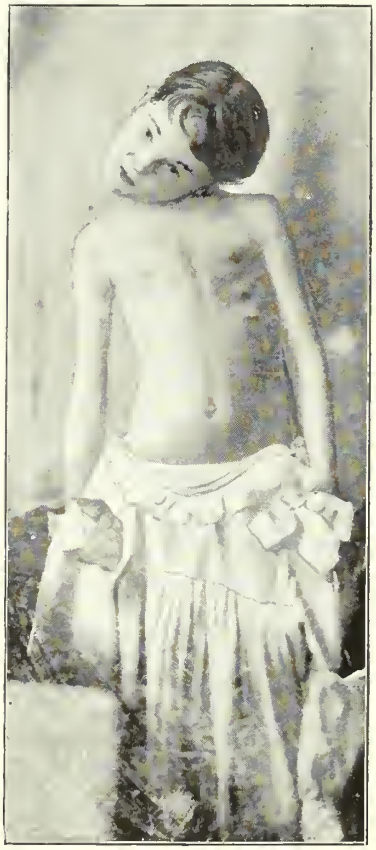

Fig. 11. Tuberculosis of the 1st and 2d cervical vertebræ, causing deformity mistaken for torticollis.

There are cases, however, in which an open incision is to be preferred, and many of these can be told in advance. In these cases the deeper structures of the neck are involved, and cutting the sternomastoid only clears the way for further operation. In these cases a curved incision should be made along the anterior border of the sternomastoid and the latter taken up on a director and divided just above the clavicle. The wound is then retracted, and all bands of fascia or muscles which are found to offer obstruction to free replacement of the head, must be divided. It is often necessary to carry the dissection clear down to the spine, and then at times to resort to considerable force in manipulation before the neck can be freely twisted into a normal position. The complexus and the posterior muscles of the neck are sometimes involved, and, when so involved, must be divided, as well as those in the anterolateral region.

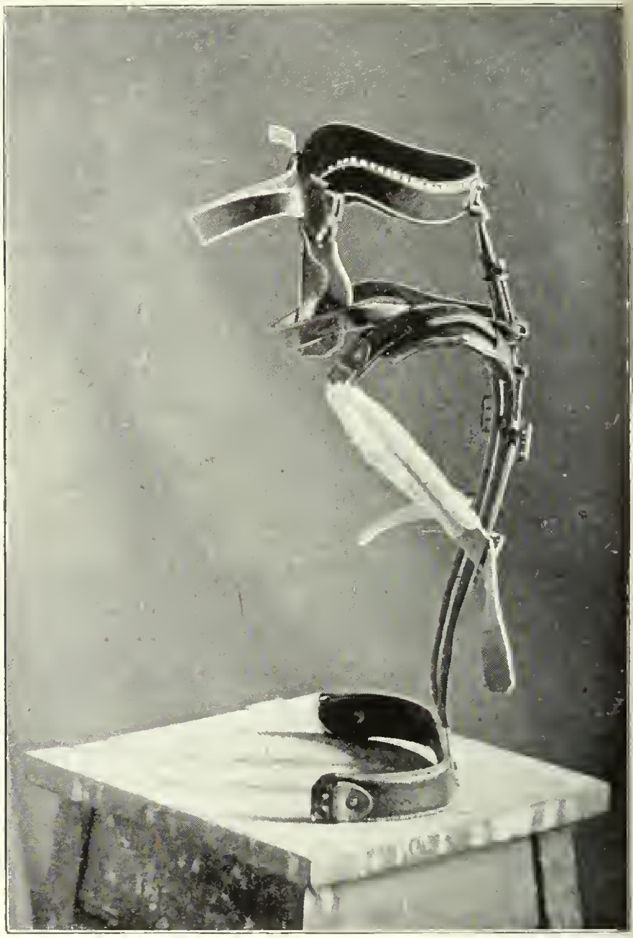

Fig. 12. Apparatus used in treating tuberculosis of the cervical spine, applied to the head in position of the deformity and gradually changed in direction.

After closing the wound and applying a dressing, the most convenient way of keeping the head in correct position is by plaster of Paris. My custom is to make a plaster-of-Paris jacket some days before, and remove it at once and allow it to dry. After the operation this is placed on the patient and is secured by a plaster-of-Paris bandage. The hair is then covered by a bandage, and plaster-of-Paris bandages are placed around the head and neck, running down on the plaster jacket and being reinforced by a couple of iron strips running up the back and behind the ears. The head meanwhile is held in a super-corrected position until the plaster sets. The plaster is then cut away from the face and ears. This apparatus is worn at least a month, preferably for two months, and then removed, and the wire splint substituted, the latter being removed each day for the application of electricity and gymnastic exercises to develop the muscles of the neck.

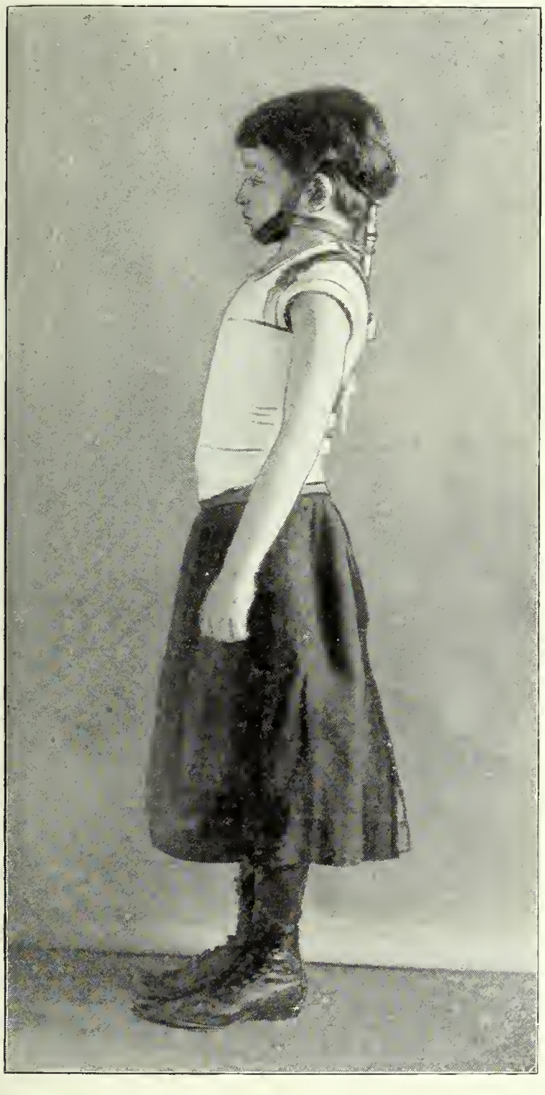

Fig. 13. Patient with tuberculosis of the cervical spine after several months' treatment.

It must be remembered that after-treatment is as essential to the cure of a long existing torticollis as in a club-foot. The vertebræ have been distorted and articulate with each other in an abnormal way, and, in spite of the fact that the tight bands of muscles and connective tissue have been severed, these bones will assume their old relation to each other unless held in a proper position by apparatus until they have had time to readjust their articular facets and the stretched ligaments have shortened to such an extent as to allow the bones to be kept in position by the voluntary efforts of the patient. Not until this point is reached is it safe to abandon artificial support for the neck.

The question of diagnosis between torticollis due to muscular contraction and bone-inflammation, is apparently not so easy as would appear at first sight, as I have seen a half dozen cases in consultation where inflammation of the upper cervical vertebræ was present, and yet the deformity had been regarded as due to muscular contraction, and tenotomy proposed as a means of cure. (Figs. 7, 8.)

The position in both cases is very similar, but in my experience the face is apt to be directed downwards rather than upwards when disease of the bone is present, and the lateral rotation is usually much more pronounced than in the muscular variety.

Pain can be almost always detected by rotating the head if the disease is at all acute, and if the inflammation is situated in the upper two vertebræ, the patients resist attempts to place them in a recumbent position and prefer to lie on the face. My explanation of this feature is that, owing to the anatomical relations of the first and second cervical vertebræ, the prone position takes the weight of the head from an inflamed odontoid process, while, when supine, the head thrusts the ring of the atlas sharply against it. We frequently see these patients holding the head carefully in the hands when changing from the lying to the erect position. (See Fig 9.)

The treatment, of course, is radically different in these cases of bone-inflammation and consists of giving as complete rest as possible to the inflamed joints, and this I have secured more easily by the use of plaster of Paris than in any other way.

The patient's hair should be cut short if a boy, or, in case of a woman, drawn up to the vertex and made into a braid, or it will cause endless trouble.

A piece of stockinette small enough to fit snug and long enough to reach from six inches above the head to the ankles is slipped over the patient, feet first, as a rule, a couple of small slits having been cut where the arms should go. Only a slit should be made, as the arm-hole is apt to be too large. The top of the stockinette should come far enough above the head to allow it to be tied like the mouth of a sack after a bandage has been put around the neck to make the stockinette fit there. The stockinette is then turned back from the face for the time being.

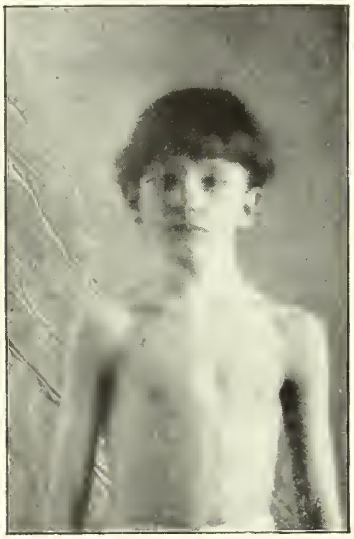

Fig. 14. Patient with tuberculosis of the cervical spine at the end of two years' treatment. Good position and function.

The patient is then steadied in a suspension-swing, that amount of traction being applied to the head which gives the greatest comfort, and pads of felt are placed over the iliac crests and down the center of the back and plaster-of-Paris bandages are applied from the trochanters to the axillæ. As soon as these are partly set the plaster is trimmed out under the arms, which are then dropped by the sides, the head being still supported by the swing, and plaster of Paris is put over the shoulders. The head is then taken from the swing; the stockinette is pulled smooth over the head and tied securely on top; a cotton bandage is put around the neck like an old-fashioned stock; and a slit is cut in the stockinette for the mouth and nose. A roller-bandage of suitable size, to keep the mouth well open, is then put in the patient's mouth, otherwise it will be impossible to open it after the helmet is finished. The head is then held by an assistant in the best possible position that can be secured without giving rise to pain. Plaster bandages then go all around the neck and head except the nose and mouth. It is usually wise to reinforce the plaster by a small strip of malleable iron bent to fit the back of the head and trunk, and one running down in front under the chin.

When the plaster has set, it is trimmed off around the face just above the eyebrows and at the edge of the chin. Holes are cut for the ears, a circle is cut at the top of the head, and the stockinette is turned back from the face and secured by pins stuck in the plaster. The armholes are also trimmed, and likewise the lower edge above the thighs. (Fig. 10.) When the plaster is thoroughly dry, say, the following day, the lower part of the shirt is reversed and the upper part is turned down and sewed to it, and the entire plaster-of-Paris shell thus covered by stockinette and a very neat finish secured.

If it has been possible to put the head in a normal position the helmet is allowed to remain for several months; if not, it is sawed through around the neck after a lapse of three weeks and the position corrected as far as possible without causing pain, bits of wood being inserted, if a gap is opened in the plaster, and the whole is secured in the improved position by another plaster-of-Paris bandage. Of course the stockinette is removed while this is being done and the metal strips cut out if they have been used.

The length of time which the support must be worn will depend on the character of the inflammation. If it is an influenza, six months is often sufficient; if tuberculosis, from two to three years must elapse.

I formerly made use of apparatus with Archemedian joints at the occiput and root of the neck, which allowed the application of the machine to the head and trunk in any position of deformity, and this was gradually changed by the bands, the screws which held the joints being temporarily loosened to allow movement. (Figs. 11, 12, 13, 14.) Although this proved eminently satisfactory in several cases, I rarely use it now, as I have found the plaster-of-Paris dressing much more satisfactory in most cases.

At times, however, a somewhat different kind of apparatus is very useful, as shown in Fig. 15. This patient had an infection of the upper cervical vertebræ following a severe attack of the grippe, and was obliged to hold his head in his hands except while supported by the apparatus, but with its aid he resumed his occupation as bookkeeper. The chin-support had a spring hinge under the ear so as to allow the jaws to open, and when convalescence was fairly advanced this was discarded, support being secured from the brow-band alone.

It was formerly supposed that all broken necks proved fatal, but many of them do not, and unless so much harm is done to the spinal cord at the time of the injury as to permanently damage it, the fracture should get well, leaving the patient in excellent condition. My experience, however, is that fractures of the spine, wherever situated, require a much longer period of protection than when in the long bones, and I have seen several cases where paralysis came on when support was removed too soon, but disappeared promptly when the spine was adequately protected, the ultimate recovery being complete. The plaster helmet is best used in these cases, the mode of application being modified to suit the exigencies of the case. (Figs. 16, 17, 18.)

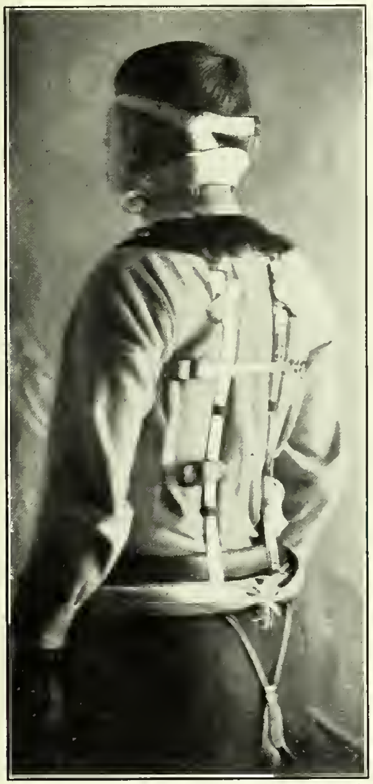

Fig. 15. Apparatus for supporting the cervical spine when inflamed. The hinge and spring under the ear allow motion of the jaw. The brow-band supports the head against the uprights in the rear.

Spasmodic torticollis is a form of spasm involving one or more of the muscles of the neck, and the deformity to which it gives rise will depend on the muscles which are involved. The sternomastoid and the trapezius are usually first affected, but the spasm later on frequently affects many other muscles of the neck and at times involves those in the trunk, as well, so that the patient passes from a condition where slight twitchings of the neck are noticeable to one where violent and grotesque contorting of the entire trunk take place and he bows almost to the floor and then raises the trunk and twists it violently backward to one side.

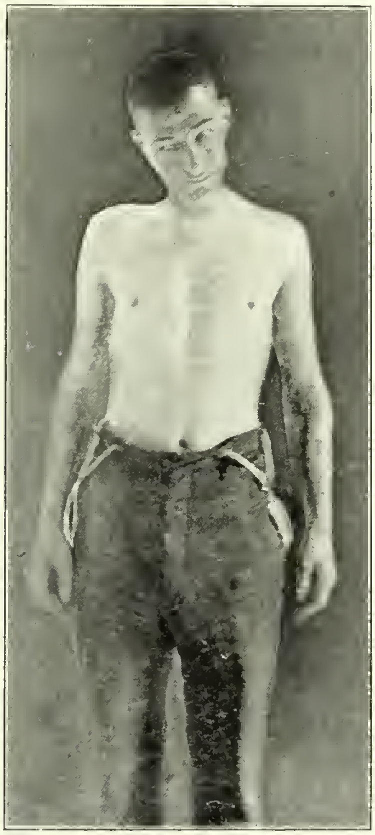

Fig. 16. Fracture of the lower cervical vertebræ causing paralysis of both upper extremities, which disappeared promptly by use of the jacket and jury-mast. The deformity resembles torticollis.

The spasms may be tonic or clonic. Usually they are of the latter variety, the spasm varying in frequency and intensity, and being increased by anything that irritates the nervous system.

A great many theories have been advanced as to the cause of these spasms, but as yet no satisfactory answer has been given. It occurs generally in people of neurotic family, who have subjected their nervous systems to over-fatigue in one way and another. It is said to be caused by exposure to cold, otitis media, malaria, rheumatism, and injury, and also to ocular defects, but these causes would probably be inoperative in a previously healthy individual. In some cases it seems to belong to the class of occupation neuroses and resembles writer's cramp to a great extent. In many cases the head can be kept quiet by a very slight support, as the tip of the finger, or by resting the head against a chair. In most cases efforts at regulated motion cause marked increase of the spasm, while in one case that came under my observation, the head was in constant motion while the patient was quiet, but gave no trouble while he was riding a bicycle. This, however, is very unusual, and voluntary effort of other parts of the body generally increases the spasm to a marked extent.

The site of the lesion is apparently in the nervous system, but is yet unknown. Many claim that it is a defect in the cortex, and others that the higher areas are also implicated, while some believe it to be of mental origin and a side phenomenon of hysteria.

In the treatment of these cases, many things have been tried; and, amongst others, the use of antispasmodics, like conium and gelsemium, has been advocated. The patient is put to bed and the drug administered in gradually increasing doses until either the spasm is controlled or the pulse is so depressed that it seems too dangerous to push the dose further. Some observers have reported most brilliant results with this method after operation had failed. In my own hands, however, the results have been negative. The spasm stopped, it is true, but with the cessation of the spasm there was such a close approach to cessation of the heart's action that the patient was obliged to remain absolutely quiet in bed, and as soon as the drug was reduced sufficiently to relieve one of anxiety lest some suddden movement on the part of the patient might cause the heart to cease beating, the spasms of the neck began to reassert themselves.

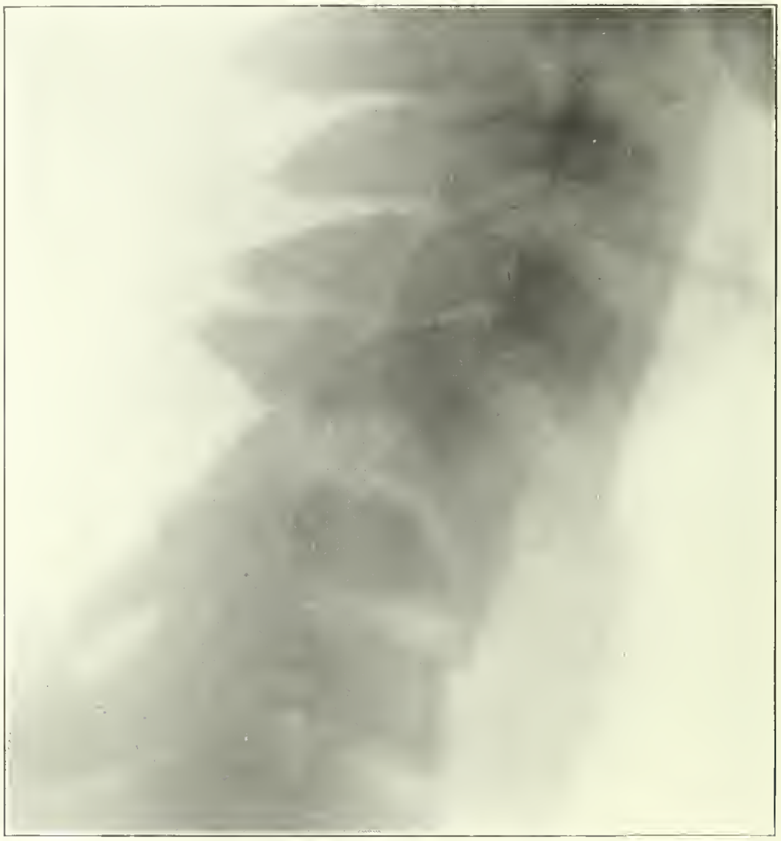

Fig. 17. Skiagram of fracture of the 5th cervical vertebra, causing partial paralysis of the arms, which was relieved by support to the neck.

Surgical intervention at times is of service, though not invariably.

Tenotomy, so useful in ordinary torticollis, is useless here, as it is not a question of lengthening a shortened muscle, but of quieting one which is the subject of constant nerve-irritation.

Resection of the muscle is open to the objection of being a very mutilating operation, and no more effective than operation on the nerves.

Neurotomy may be of temporary use, but the tendency of nerves to unite is so well known that it is much wiser to resect a half inch to an inch of any nerve whose function it is desired to abolish.

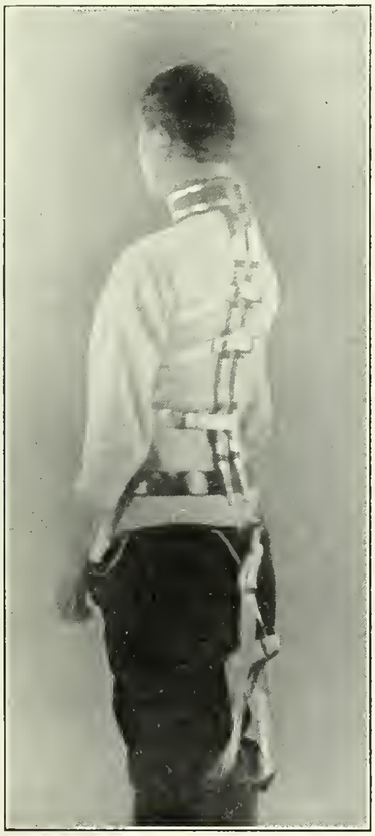

Fig. 18. Patient with practure of the 5th and 6th cervical vertebræ, which caused partial paralysis of the arms. It was relieved by wearing for six months the apparatus shown.

The sternomastoid and the anterior fibres of the trapezius are the chief muscles concerned in rotation of the head. They turn the face away from the side to which they are attached, and also depress the ear towards the shoulder of the same side.

The muscles in the posterior part of the neck serve to extend the head on the shoulders, and some of those on the opposite side of the neck act as assistants to the sternomastoid and trapezius as rotators, as, for instance, the complexus and especially the obliquus capitis inferior, which is not attached to the skull itself, but runs from the spinous process of the second vertebra to the tip of the transverse process of the first vertebra.

The sternomastoid and trapezius get their chief nerve-supply from the spinal accessory, while the posterior muscles are supplied by the posterior branches of the upper cervical nerves. Since it has seemed impracticable to cut off the source of nerve-irritation, it has been suggested that the muscles subjected to spasm be quieted by cutting off their nerve-supply, and the operation that is indicated will depend on the muscles involved in spasm. If these be the sternomastoid or trapezius, or both, the spinal accessory should be attacked and a part of its spinal portion removed before it reaches the sternomastoid. It lies in the upper part of the neck between the internal carotid artery and the internal jugular vein, and, leaving these, runs obliquely downward and outward. Descending beneath the sternomastoid for nearly an inch it enters the deep surface of this muscle about an inch and a half, below the tip of the mastoid process. In the sternomastoid it is joined by branches from the third and fourth cervical nerves, and, piercing it, it continues across the posterior triangle of the neck to enter the trapezius.

To expose this nerve an incision two or three inches long with its center about opposite the angle of the jaw, should be made along the anterior border of the sternomastoid. The edge of the muscle is first exposed, and then the muscle is retracted so as to expose its under surface, the whole muscle being turned outward.

You may now see the posterior belly of the digastric and the internal jugular vein, and may feel the tip of the transverse process of the atlas midway between the tip of the mastoid and the angle of the jaw.

According to Eliot the nerve has the following relations to the transverse process of the atlas: "Never above it; sometimes directly over it; usually a fraction of an inch in front of its most prominent part." From this point to its entrance in the sternomastoid the nerve is isolated and as large a piece as practicable removed.

As the sternomastoid and trapezius do not derive their entire nerve-supply from the spinal accessory, this operation does not completely paralyze the muscles.

If the spasm is not confined alone to these muscles, but the rotation is aided by those in the back of the neck, this operation must be supplemented by the division of the posterior roots of the upper cervical nerve on the *opposite* side of the neck. Noble Smiths attacked these nerves through a longitudinal incision to the side of the ligamentum nuchæ, and Keen suggested a transverse incision one-half inch below the lobule of the ear, while Stewart has combined these two incisions and made a modified T-shaped cut, which gives easier access to the parts.

Keen describes the steps of his operation as follows:

1. Make a transverse incision one-half inch below the lobule of the ear, two and a half inches long, beginning at the median line or a little beyond.

2. Divide the trapezius transversely in the line of the skin-incision.

3. Dissect up the trapezius; identify the great occipital nerve as it emerges from the complexus about half an inch from the median line, and usually half an inch below the incision.

4. Divide the complexus transversely at the level of the nerve by repeated shallow cuts. Expose the trunk of the posterior division where it emerges between the atlas and the axis, and exsect a portion (half an inch or more) of it before it divides.

5. Recognize the inferior oblique by following the great occipital nerve towards its point of emergence where it passes below the lower border of the muscle.

6. Recognize the sub-occipital triangle; the inferior oblique is its lower border. The nerve lies in this triangle close to the occiput, but below the vertebral artery. Exsect as close to the spine as possible, taking care to avoid the artery.

7. One inch below the second will be found the third cervical nerve, the external branch of which should be excised close to the point of bifurcation.

These operations are sometimes followed by most brilliant success, but just as frequently by lamentable failure, just as some operative failures have been subsequently treated by drugs with success, and some failures after the use of drugs have subsequently been operated upon successfully; so also cases which have failed under both these treatments, have, at times, responded to electrotherapy and regulated gymnastics instituted for the purpose of establishing mental control over the patient's muscles, which clearly illustrates the importance of not under-estimating the psychical element in these cases of spasmodic torticollis.

I am afraid that my remarks have been somewhat desultory in my effort to cover a large field in a short space of time, but I have personally been so much interested in noticing the close resemblance between deformities of the neck produced by many dissimilar causes, and I have so frequently been asked to differentiate between them that I have ventured to bring this subject before you this afternoon for your observation.

SOME LESSONS FROM THE LIFE AND LABORS OF HELMHOLTZ*

By Casey A. Wood, M. D.
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CHICAGO

In a recent article on the "Prevention of Cruelty to Listeners," Brander Matthews asserts that, inasmuch as the after-dinner speaker is generally invited to a feast that he may say a piece and not read a paper, a visible manuscript is most intolerable and not to be endured. "A paper," says he, "is not a speech; and a speech which is written and read is frankly a contradiction of terms; it is as illogical as a woman's argument. In fact a good after-dinner speech is merely a talk to *all* the diners, instead of to a few, and who would think of *reading* his part of the conversation to his table neighbor? But," adds the Professor, "a formal address at an anniversary may well be written and read as the outward and visible sign of adequate preparation."

Something in the Professor's words seems to make the latter rule mandatory upon me, and as your President in his invitation was too polite to veto the use of notes, I shall occasionally employ them, always with your permission, on this eventful occasion.

When your President conferred upon me the considerable honor of an invitation to address you, on the first anniversary of your foundation, he suggested that I should take as the text of my preachment some work accomplished by one or other of the Fathers of ophthalmology.

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*An Address to the Minnesota Academy of Ophthalmology and Otolaryngology, at the Annual Meeting, Oct. 13, 1911.

I feel like apologizing to you for choosing what may at first glance seem a time-worn subject, but in explanation let me advance the undoubted fact that in the constellations that bedeck the medical firmament, the star that shines for us physicians and ophthalmologists with a particularly clear and steadfast light is that of Helmholtz. I do not make this assertion because he invented more useful and practical instruments, and elucidated more problems in ophthalmology than any other man, but because he combined, to an extent found in few men of science, the virtues of the specialist with the best qualities of the all-round medical man.

One naturally thinks of Helmholtz as a great physicist, a famous mathematician, or a learned exponent of the pure sciences; he was indeed all these, but in his well-known lecture on "Thought in Medicine," delivered before the Institute for the Education of Army Surgeons, he refers in the most enthusiastic terms to his work in hospital and to his graduation as a physician. "I am glad," said he, "that I am able to address an assembly consisting almost altogether of medical men. Medicine was the intellectual home in which I grew up; and even the emigrant best understands, and is best understood by, his native land." In the same paper he says, "I consider the study of medicine to have been that training which preached more impressively and more convincingly than any other could have done, the everlasting principles of scientific work; principles which are so simple and yet so easily forgotten, so clear and yet always hidden by a deceptive veil."

In another relation than that of medicine, we may, I think, claim Helmholtz as one of ourselves. Although born at Potsdam (in 1821) he was a lineal descendant, on his mother's side, of William Penn, the great Quaker, who founded Pennsylvania. Moreover, his immediate ancestors came from Hanover when it was English territory, and his grandmother spoke the English language. I leave it to you to decide, with McKendrick, whether it is possible that "something of his calm, reserved, self-possessed manner may have come through the maternal line from the old Quaker statesman who made his mark on the new world."

Helmholtz stood for sobriety and simplicity in living. He was a quiet but effective example of the democracy in science, and, although the most social and kindly of men, he had no time for the ordinary distractions of society. It is true that conditions in his own country rather emphasized this Spartan attitude; it is always easier to make a national virtue out of a national necessity, but, after all, the temperamental virtues and the simple life go not unnaturally together.

I think I have elsewhere related my experience of the style observed by the various teachers in the *Physiologisches Institut* at Berlin when I was first a student in that school of learning a quarter of a century ago. Every now and then one of the teachers would invite his colleagues and some of the students to a modest repast—generally known as a *Microscopische-Bier-Versammlung*—at which we talked, ate sandwiches, drank beer, and then talked some more, not only about the special matter in hand, but about everything else under the sun. The simple, almost primitive character of the material entertainment, contrasted with the elaborate and priceless quality of the spiritual and mental food, made an enduring impression on my mind. Looking back on those happy, care-free days, I believe at the time it was more the unobtrusive informality of these meetings,—if I must use the word, the frugality of it all,—that I remember most decidedly. Truly the greatest are often the simplest of men. Just think of it: we listened, in their hours of ease, to the conversation of Helmholtz, Du Bois Reymond, König, Fritsch, Gad, and a dozen others at that time less widely known, but since become famous.

I wonder what importance you as the medical advisers and citizens of a free state attach to the waste of life, of money and of energy that goes on all about us, and, for the matter of that, in the bosom of our own families. None of us wishes to be regarded as a croaker or even to rank as a Jeremiah, but what in the name of Hygeia, or any other goddess, is the meaning of it all? Is it a passing phase in the development of a new world, to be corrected by time and experience, or are we going to seed prematurely, to be finally purified into the Gehenna of nations? Personally, I do not "despair of the Republic," but I cannot help thinking that it is foolish to mistake mere display for effectiveness, to accept lavish expenditure in lieu of high thinking, to substitute the shadow for the reality. Of course, the difficulty generally is, how, in the face of serious obstacles, to live our own lives properly, yet how can *we* consistently and effectively criticise that deplorable waste and extravagance in public and private life that we, better than anyone else, know to be abundant everywhere, unless we demonstrate the faith that is in us by simple and hygienic habits?

I am sure that Helmholtz was not a mere ascetic. Although a tireless worker and a deep student, he liked the good things of this world, but he fervently desired, first of all, to bring them within the grasp of others; and he believed that it is mainly through the appreciation of scientific discovery, advanced education, and rational living that the general level of mankind would be raised to higher things, that more solid satisfaction is to be derived from a dollar rationally spent in the public service than from ten cast into the ditch of selfish enjoyment. But to attain this Nirvana the individual must begin early, the nation must begin early, must keep it up and keep always at it. The price of personal and national advancement is that of liberty—everlasting vigilance.

We have heard a good deal about the story of the simple life in recent years, and we know that it is only the revival of that gospel preached by philosophers when Babylon and Thebes were young, and long centuries before Rome was founded or Paris dreamed of, but I attach some importance to the knowledge that Helmholtz thought it worth while to champion it, and that he did what he could to foster plain living in conjunction with exalted thought.

During his long and eventful career Helmholtz, in pursuance of the belief that the salvation of the race lies chiefly in the rational application of painfully acquired knowledge, found time to give popular lectures to those he thought would appreciate them. These lectures were prepared with great care and were fully illustrated, often by experiments. The text of these lectures, both in the original and in their translation, is a model of literary style, while the subject-matter is inspiring and instructive. I have long felt that, as medical men, we have been very derelict in our duties as teachers and as guides of public opinion. There is at least some ground for this accusation in the fact that we have not merely failed to act as instructors of the laity in such vital matters as private, municipal, and federal hygiene, eugenics, the regulation of the food supply, etc., but we have also neglected to furnish the public with rational answers to many medical questions which they have a perfect right to ask, and to supply it with such medical news as we are able to wrest from the hidden world of physiologic and pathologic truth. Until quite recently it would not be incorrect to say that the average citizen gained his ideas of biology, therapeutics and sanitary science from purely commercial enterprises, from quack advertisements, from yellow journals, from sensational magazines, and from novels whose authors drew upon an overwrought imagination for their medical ideas. I fear that the medical profession is still much behind its duty, even at this late date. Of course, you and I know the reasons conveniently assigned for the conservative attitude of the doctor towards attempts at popular enlightenment. I am sure you agree with me and with Helmholtz that they are untutored thoughts. If I might dare to make a suggestion to this Academy it would be that certain of its members be appointed each year to arrange, in every part of this state, for plain and unvarnished, but illustrated and interesting, lectures on the care of the eyesight, the treatment of asthenopia, including the wearing of glasses, and how to prevent blindness. It is chiefly by iteration and reiteration, year after year, of these (to us) trite truths and commonplaces, before schools and in churches and public halls that the people can be properly and effectively instructed. Then, the same committee should from time to time supply the press—daily, weekly, and monthly—with short, interesting "stories" on these same old, old subjects of ocular hygiene and correct therapy. All this should be done in the way of a public service, a professional duty, and not as a commercial enterprise. Let the last-named consideration take care of itself.

There are many other reasons why the medical profession should make use of public lectures and contributions to the press on these vital questions, and one of them, curiously enough, arises out of a recent decision of the United States Supreme Court in the Dr. Johnson Remedy case, decided about a year ago. You will remember it has been the hope of most well-wishers of the public good that the Bureau of Chemistry might legally concern itself, not only with the contents of patent medicines, but with the curative claims put forth by their owners. Thus, if the label of a certain nostrum bore a glaringly untrue statement, such as that the mixture cures consumption, or "disperses" cancer, or is an infallible remedy in Bright's disease, it might, as a matter of public policy, be forced to suppress such obviously incorrect statements. The court, however, held that the law does not aim at all at the false and misleading statements which might appear upon the label, but only at such phrases as determine the identity of the article, including possibly its strength, quality, and purity. It is no crime, according to the court, for the faker to promise that his medicine will cure cancer or any other incurable disease; his offense consists in claiming that the nostrum contains what it does not contain or in neglect to inform the purchaser of all its ingredients. In the opinion of the majority of the court, it is impracticable, in the present divided state of medical knowledge, for the Bureau of Chemistry to set up criteria by which to determine the truth or falsity of the curative claims put forth on the label. In other words, the people are to decide whether the exuberant claims of quack medicines are justifiable or unjustifiable; and how can they protect themselves, how can they arrive at anything like a wise decision, unless they have the knowledge necessary to distinguish between the, at least demonstrably, false and the probably true? To my way of thinking, instruction plainly furnished in an interesting and attractive manner by medical men who recognize their duty in this regard will be more beneficial, and the result will be more manifest and more enduring, than if attained by the rather artificial and paternal method at first suggested by the Federal Bureau.

There is, in recent years, a marked change in what might be called the "publicity" phase of medical and semimedical affairs on the part of our profession. We no longer find it necessary to hide our lights under the ethical bushel in discussing physical ills, and their relation to the citizen and to the State. The leaders of the profession do not now refuse to write articles for the popular monthly and other magazines on much the same problems in hygiene, eugenics, applied therapeutics, etc., as from time to time confront us. Even the daily newspaper—as witness the work of Dr. W. A. Evans in the Chicago Tribune—is beginning to wake up to the desire or willingness of the common people to receive sensible and competent instruction in matters medical. Consequently, although the amount and character of this publicity is insufficient as yet to satisfy the nation's need, I look confidently forward to the time when there will be a widespread, organized, and effective campaign on the part of the medical profession to teach the whole citizen-mass such work-a-day truths in biology, medical sociology, sanitation, and rational therapy as will enable them to render intelligent judgments when called upon to exercise their franchise. The American Medical Association, with its various branches all over the country, has, as you know, initiated several movements looking in this direction, while much good, though isolated, work is also going on under other auspices. Perhaps the various medical societies in Minnesota may achieve new triumphs by furthering this among the other beneficent ventures she has made in the past.

It is not to be expected that such an old institution as the art and science of healing should be otherwise than conservative. It would be valueless as an agency for the promotion of human welfare if it were immediately driven hither and thither by every wind of doctrine. On the other hand, he who reads the history of medicine will recognize its development as many another science has gone forward, and that it has been subjected to the same evolutionary forces that have, in the course of time, transformed alchemy into chemistry, astrology into astronomy, and mere drugging into a more or less rational system of therapeutics. We are now passing through a phase of our history that may be termed the renaissance of medical theology, somewhat tempered by a return to the times and practice of the "bonesetter." Once the priest was the only physician, and in the monastery the people found those herbs and simples that chased away the devils of physical ill; while later, among other incantations, certain empirics of the late eighteenth and early nineteenth centuries, just as in the beginning of the twentieth, rubbed, pulled, stretched, leeched, poulticed, blistered, and painted offending joints, often treating imaginary fractures and dislocations; occasionally, however, reducing genuine dislocations that had passed unrecognized by more orthodox surgeons, or had been given up by them as incurable.

How shall we meet this astounding situation in, let us say, lay therapeusis, this remarkable resurrection of theological medicine? By ridicule? By attempts at repression of what we call irregular medicine? Decidedly not. We desire to make neither martyrs nor bitter enemies. Perhaps, too, we medical men may have a few *corpora aliena* to extract from our own corneæ before we point out the larger masses on the neighbor's eyeball! Personally, I believe in the competency and justice of the final judgment of all the people. Let the regular physician, the homeopath, the Christian scientist, and the "osteopath" each present his case at the bar of public opinion; and if we are not upheld it is because we do not deserve to exist.

I rest my plea for this disposition of such medical matters largely upon the contention of Helmholtz, that, "while freedom is a gift of doubtful value to feeble minds, it is most precious to the strong; that the nation has most to expect from those capable of giving support to liberty, whose labors are the result of personal effort combined with self-control and their love of science." There is another reason why I have confidence in this plan for treating those irregular, fantastic aberrations of regular medicine that spring up, appeal for a time to some phase of the popular imagination, and then pass away. It has been tried with success in the neighboring province of Ontario and has been practically adopted by the great state of Minnesota. Of course, you will at once see that it is essential to a rational choice by the people of a form of therapeutics that they should be intelligently informed as to the merits of this competition. That consummation may be partly secured by the sort of lectures I have just referred to. I do not mean by controversy, not even by the remotest public reference to what may be styled "irregulars," but by a continuous repetition of the well-understood laws and fundamental facts of biology and hygiene. Let the people draw their own inferences.

Partly, also, it is to be preceded by the statement that while every man has a perfect right to have his ailments treated by any sort of doctor or priest he pleases, such medical practitioner should by law be obliged to learn at least as much about the anatomy, physiology, and pathology of the "human form divine" as a dentist is obliged to know about teeth, a dispensing chemist about drugs, or an engine-driver about a locomotive. Such a reasonable contention appeals at once to the majority of men, and if put forward in the spirit of fairness can have but one result,—the regulation by law of all medical practitioners, insofar as the fundamentals of medicine are concerned. With the terms of the contest settled thus and the devotees of regular medicine presenting clean hands, I have no doubt of the popular verdict.

Finally, gentlemen, I would like to speak of a characteristic of Helmholtz that, developed more or less in many great men, is sufficiently uncommon to be worthy of comment. Perhaps, also I think of it because I once played a minor part in the exhibition of this quality of the master. I refer to his scrupulous and kindly regard for the failings, claims, and rights of others. You will recollect that although Helmholtz was undoubtedly the first to give an intelligent and complete explanation of the mechanism of accommodation, he declared when the papers of Cramer were laid before him some time after the publication of his own researches, that the Dutch observer and not Helmholtz should have the honor of the discovery, that he had done little subsequent to Cramer's solution of the main problem to elucidate the theory. Again, Helmholtz's discussion of the claims of those who had *almost* invented the ophthalmoscope, as well as his attitude towards those who subsequently improved upon the first model, are couched in the same terms of praise of their efforts, with but few remarks about his own.

As most of you know, Helmholtz visited this country in 1893, the year before his death. Among the receptions and dinners in his honor a banquet was given in Chicago, and because I suppose, I had been one of his students, —for I had no other claim upon the distinction, —I was asked to speak at the dinner upon a subject connected with the history of ophthalmology. Owing to the noise and confusion attendant upon dining and wining several hundred doctors, and because of the distance I was placed from him, I am sure Helmholtz did not hear one-tenth of the sentences I was doing my feeble best to deliver. He must have noticed my predicament, for a good part of his reply to the toast we drank to his health was taken up by a reference to the labor I must have undergone in preparing such a fine speech, and to the reward that awaits every young man who intelligently studies the works of the Fathers in medicine. Of course, the praise was undeserved, and nobody knew it better than myself, but the incident shows, as his whole life demonstrated, the sort of man he was—learned and kindly, successful and generous, endowed with all great qualities; but simple, modest, and true. Indeed, he seems to me to have exemplified Bayard Taylor's dictum, that

"Fame is what you have taken,
Character's what you give;
When to this truth you waken,
Then you begin to live."

SOME OF THE MISTAKES MADE IN THE PRACTICE OF OBSTETRICS*

By Frederick E. Leavitt, M. D.

ST. PAUL

In presuming to direct attention to the mistakes made in the practice of obstetrics, I need to explain that my remarks are based on personal experience, and that my conclusions should be taken only for what they are worth. I shall not expect you to agree with all I say, for some of it is contrary to the generally accepted teaching on the subject, much of which is, to my way of thinking, obsolete rot.

In the first place, I maintain that it is a mistake to assume that midwifery is passé and uninteresting. To be sure, it is a very old branch of our profession and for this reason may not be so alluring as the newer and more novel things so constantly coming to notice, but it is still worthy of our best efforts, and is unquestionably established on a more scientific basis than any other special department of medicine. Yet, withal, it is a much neglected art. I venture to say that there are more doctors of average ability and experience who can do an appendectomy successfully than there are who can apply the obstetric forceps with a like degrée of skill and judgment. While I agree that a large part of obstetric practice is uninteresting, and confess to a liking for more difficult work than severing the umbilical cord, I do not think we should lose sight of the fact that sometimes problems arise in this work which demand as much knowledge as any of the complications in medicine or surgery. And here we make another mistake. Instead of interesting ourselves to the extent of finding out how well fitted our patient is for motherhood and directing her from time to time during gestation, we content ourselves with a few questions concerning dates, nursing, and other matters of expediency, write her name on our waiting-list, and forthwith begin worrying lest her labor interfere with our other plans. A woman about to become a mother for the first time needs many conferences with her physician. It is quite as essential that she should know how to conduct herself during pregnancy as it is to make baby-clothes or prepare for her accouchement. Instead of leaving her to get wisdom from the women of her acquaintance who feel it incumbent upon them to pass along the superstitions of the ages, and who never neglect the citation of dreadful experiences, she should be advised by her physician, and encouraged to confer with him often. I find these talks helpful in that they give me an opportunity to disabuse her mind of a lot of erroneous notions. Not that such delusions do any particular harm as far as final results are concerned, for whether she believes that hanging pictures will twist the navel cord around the child's neck, or that the baby can be marked through maternal impressions, it makes very little difference in the end. It would, however, save her a great deal of unnecessary worry to be told the truth of the matter, and we are the proper ones to tell her.

It is highly important that we see and examine our patient often enough to keep track of her condition; to learn if the fetus is favorably placed; if the proportions are ample; if the kidneys are doing their work; in short, all the contingencies of the particular case should be fully estimated before she falls in labor.

If we omit to do this there is danger of our committing other and more serious mistakes. It pays to be fortified, and if we are weak in our prognosis we may do the wrong thing when the stress comes. Our impulse is to help, and help is expected of us. When we become perplexed the temptation to interfere increases, and only too often do we wish afterward that we might have been better acquainted with the situation. Importuned by the patient herself, as well as by relatives and friends, we yield to their solicitations to "do something" and perhaps do the wrong thing.

Some years ago I contended that the forceps might be safely employed in every case, some of the advantages which I claimed being that labor could be shorn of much needless suffering; that their use saved time; and that the perineal stage could be better managed with the advancing head thus firmly held. I still maintain that such practice is all right under certain conditions. Generally speaking, though, I am sure it would be dangerous for everyone and under all circumstances to deliver with forceps. In Europe they go to the other extreme, resorting to them so seldom that they hardly become proficient in their use. I saw them employed in the Vienna clinic in a way that convinced me my instructors were entirely correct in looking upon the forceps as a dangerous instrument. Where one sees two Cæsarian sections to one forceps delivery, it is quite probable the scalpel is the more popular instrument.

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*Read before the Interurban Academy of Medicine of Duluth and Superior, Sept. 20, 1911.

I truly believe we are too meddlesome in every branch of our profession. We formerly erred in therapeutics, and by our activity frequently made the patient worse. We are learning to let alone, and growing brave enough to tell our sick people that they do not require drugs in order to get well. We are still too swift to apply our art. The rising generation is imbued with a consuming ambition to be surgeons, to cure everything with sharp-edged tools. A prominent teacher is quoted as saying of gynecology, for example, that there was none except the knife.

It is the same in obstetrics. If labor hesitates, in go the forceps; if the placenta sticks a few minutes beyond schedule time, in goes the hand; and we talk glibly of high forceps delivery, postpartum hemorrhage, and retained placentas. Obstetricians of experience have a wholesome fear of such manipulations. "Keep out" is their motto, and only when absolutely necessary should the hand or even the finger be passed into the parturient canal, and then only when the same precautions that ought to be followed in a surgical procedure are observed. I am accustomed to deliver a large proportion of my cases without examination *per vaginam*, depending on abdominal palpation and other signs for my information.

I would like to say a word about pulling. To hold someone's hand or other object for support is natural, but a patient need not be encouraged to make voluntary effort in order to hurry the birth along. It is harmful, inasmuch as it exhausts the strength and makes the patient lame, and it is needless in most instances and ill-timed in others. A woman in labor seizes anything in her frantic efforts to find relief, and it would be unnatural, as well as futile, to try to keep her from exercising all her expulsive powers. The mistake is in making labor too active a process, attempting by voluntary effort to hasten its completion. The average woman is unaccustomed to such violent exercise. To fit up contrivances on which to pull, and then urge her to make still greater efforts, tends to force the birth along with unnecessary as well as harmful haste. She is crying for speedy relief and we want her to have it, but we must not forget that a given force applied for a short time does more damage than the same force distributed over a longer time. I recently spent part of a day in the Clinique Baudelocque, Paris, where I watched the delivery of several babies. Every time the mother suffered a pain the accoucheuer would direct her to push, repeating over and over, fairly singing at times, the word *pousset.* Instead of urging a patient to "bear down," I tell her to take it easy. A stitch prevented is better than nine taken. And while we are on the subject of pulling it may not be amiss to refer to the mistake that is sometimes made of applying traction in breech-births before the arms have slipped through. Here again the impulse to help will lead us into difficulty. We see something to pull on and we pull. Up go the arms above the child's head, and vital moments are lost maneuvering their delivery.

The use and abuse of chloroform also deserves consideration, the criticism I shall make being the tendency to exhibit its ameliorating effect too soon. It is invaluable where labor is violent and the expulsive forces greatly over-balance the resistance of the tissues. Such labors are likely to be accompanied by traumatisms of the parturient canal if the contractions are not modified by an anesthetic. But to give it early will disturb the whole course of labor. When once the patient experiences the relief it brings she will cry for it continually, and if it be kept up indefinitely its use becomes dangerous to the child and harmful to the mother.

While we should aim to save our patients as much suffering as is consistent with life and health, it is the end-result that must always be borne in mind and not merely the passing exigency.

A mistake that I make, not so often now as formerly, is in undertaking to do too much alone, unaided by a nurse or another physician. It is poor judgment to start something that cannot be finished, and to begin a forceps delivery with no one for assistant but a husband in tears and a neighbor woman half scared to death, is likely to have a bad ending. One would better call in competent help and share with them the responsibility. The day is coming when women will not remain at home for childbirth, but will go to the hospital instead; perhaps not to a general hospital, but a maternity hospital where everything is provided in readiness for obstetric procedure. Patients can be cared for cheaper and better at such a place than at home, and when they learn its advantages over the confusion and inconvenience of bringing the hospital to them, obstetric practice will be lifted to a higher level. Nor would physicians take so unkindly to this part of their profession if their maternity cases were situated where competent help could be had, and where they might be watched during the long first stage of labor. It is this uninteresting and tiresome waiting that makes one sometimes wish he were anything but a midwife.

While it may be a fact that our obstetric practice is the surest part of what we earn, it is generally agreed that the pay for the service rendered is relatively too low. One loses a night's rest and is obliged to work to the limit of his endurance for a fee one-fourth as much as he would charge for a surgical operation that might take only one-tenth as long, and which could be performed at a convenient hour. It is ridiculous that a doctor should spend six, eight, or ten hours in attendance upon a trying case, perhaps making several extra visits, for a fee of $15 to $25. The plumber and the carpenter are as well paid. I am pleased to see that obstetricians are beginning to place a higher value on their knowledge and skill, many of them in the larger cities demanding $100 to $300 for the management of a maternity case. Even in the old world, where fees are counted to be low, physicians are better paid for this kind of work than we are. Instead of making a flat fee of so much for the case, our charge should be adjusted according to the time, trouble, and responsibility involved. One confinement may be so simple that a twenty-dollar fee is ample remuneration, but a neighbor woman who expects to be served for the same price, may require many times as much consideration, and yet we hardly dare ask for commensurate pay. It is this unevenness that tempts one to make them all as short as possible. We sometimes hear a physician say that he used the forceps more as an expediency than as a necessity—that he put them on to save time. This I believe to be altogether wrong. He ought, rather, to fit his charges to the time and trouble to which he is put and not resort to a surgical measure either to save himself or enhance his income.

I would like to say a few words about binders, not that their use or disuse is necessarily a mistake, but to ask why we use them at all. Does it add to a woman's comfort to be bound up? Does it prevent hemorrhage or promote involution? Women who have tried both methods tell me they are more comfortable without the binder, and it is deceiving her to promise that the wearing of one will prevent a "big stomach," for it can have no effect one way or the other. The figure becomes matronly, and there is no way of escaping it. Besides pinning on a tight-fitting band some physicians direct that a towel be folded into a thick pad and placed beneath it so as to make pressure on the uterus. Will anyone dispute that the probable effect of such pressure will be to favor retroversion?

And the breasts, why strap them down? If the baby is to be nursed, massage and other stimulation are the things needed and not suppression of the function by means of compression. If the child is still-born, or, for other reasons, it is not desired that it shall nurse, nothing at all need be done, except to *leave the breasts entirely alone.* For a year or more I have been practicing this method with marked success. The nurse and the patient are told to forget about lactation, and, above all, not to handle or bind or stimulate the glands in any way. On the third and fourth days they become engorged, but do not occasion one-tenth as much discomfort as they do when treated by any other method with which I am familiar.

I would like to know where the custom of keeping the puerperal woman on her back for ten days originated. There is no analogy in Nature that I can find. The inactivity, the relaxation, the spirit of invalidism that surround the lying-in period is an expression of morbidity. Why should a healthy woman cease to be her natural self upon the delivery of her child, a normal process little more exhausting than a night of toothache or an attack of summer complaint? Can it be proved that wholesome effort is not always beneficial? You cannot cite an instance where a normal condition, or even an abnormal one, was made better by lassitude. I contend that immediately the birth is completed, a woman need not be admonished to remain quiet or even restrain herself from doing anything she may feel like doing. The most senseless expression ever invented, yet filled with dreadful meaning, is the one we hear so often in the sick-room, "be careful." Be careful of what? Be careful not to breathe too deeply? be careful not to put the hands above the head? be careful not to eat anything? and so on. Many patients live constantly in the fear that something is going to happen.

We have all had some such experience as the following: A patient is delivered, we will say, of her first baby. Left to the care of her relatives and friends she is first told to lie perfectly still on her back, the shades are drawn, she is fed tea and toast, and every one who calls admonishes her to be careful; no cold drinks, no fresh air, no light, no lifting her head. She is covered warmly, extra heat is turned on, the head begins to ache, the back pains from lying, and before long up go the temperature and pulse. For a week or more this state of things continues and you are again summoned to her bedside. There may be infection, but the disturbance is only functional. Now is one of the times when we are in special danger of making a mistake, that of too much manipulation. If puerperal sepsis has occurred, the safest thing to do is to let it alone. To curette only makes matters worse, since there is little hope of removing all the poison, and the operation lays bare an absorbing area dangerously inviting to pyogenic germs. I know of no treatment so good as the supportive expectant. I have often watched the progress of puerperal infection when treated with antistreptococcic serum as compared with the let-alone plan, and I recommend the latter.

Four times out of five the morbidity our hypothetical patient suffers will soon disappear if the extra bedclothing be thrown off, the window opened, the bowels moved, the patient helped up into a chair, or, at least, the head of the bed elevated, and Nature given a chance.

It is very difficult to persuade people to forget a lot of tradition concerning child-bearing. I am exceedingly annoyed when I find a patient following her mother's advice instead of mine. May the day soon come when our obstetric cases will all go to the hospital instead of remaining at home! I tell the young mother she may sit up in a chair. When I call the next day to see her and ask if she got up as I directed, she will reply that "Mamma was afraid to have her get up so soon." At once I enter into a wrangle with her mother, who soon squelches me with the statement that she herself has had children and knows it is not right for a woman to leave the bed until after the ninth day. It does little good to call her attention to the fact that I have studied the matter for some years and that I am the attending physician, for her ideas are too firmly fixed to be changed by any doctor. With those who are free to follow directions I have no trouble. In four or five days they are all over the house. As soon as a patient has rested and slept after delivery, I tell her she may get out of bed into a chair, and every day from the first on I encourage her to resume as fast as she can her accustomed habits. I object to the bed-pan, preferring the commode jar or the bathroom if it be conveniently located. I explain to her the necessity of cleanliness, and, in suitable cases, direct that she perform her own toilet. You will ask what is left for the nurse to do? A nurse is a great luxury, and I delight to have a good one in attendance upon my patients. She is a sentinel, as well as a helper, and stands guard over both mother and baby, protecting them from the well-meaning but disturbing influence of friends, thus helping to carry out the measures which I believe to be the best for the patient.

It would please me to go into a further discussion of mistakes, for there are many of them made, but I feel that for one session, I have wearied you quite enough.

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FEBRUARY 1, 1912

PROBABLE FAILURE OF HEALTH BILLS IN CONGRESS

Jermane, the correspondent to the *Minneapolis Journal*, says in a letter that from his conversations with influential members of the House committee there is little likelihood of any legislation during the present session of Congress looking toward the extension of the authority of the Public Health and Marine Hospital Service. It also seems probable that a department of public health cannot be established. This means the abandonment of Senator Owen's bill. The opposition is based on the increase of authority asked for by the heads of the public health service.

One member is quoted as saying that "We cannot possibly permit a comparatively unimportant matter, such as to increase the authority of the Public Health and Marine Hospital officials, to take our time in the early months of the session."

Now would be a good time to see how much influence medical men can bring to bear on the members of the committee. A well-organized attempt to convince the committees of the *importance* of public health measures would doubtless overcome the non-medical obstructionists.

Doctors do not know how to play big politics, but it is a good season in which to begin to learn. and perhaps they would learn a few new moves if they would get busy.

It is deplorable to think that destructive organizations, patent-medicine makers, and so-called religious cults block the progressive march of medical men and their influence and effort to improve the health of the nation.

The publicity given to medical research, the discovery of new and scientific methods of combating epidemic diseases, and the general improvement in the care and treatment of the sick, must still be restricted to the benefit of the few rather than disseminated among the many. When a public and influential legislator or congressman is sick or his family in danger he seeks a physician, usually, but if the nation is sick or likely to be overtaken by an epidemic he virtually tells the doctors to go hang.

All we can do is keep at the educational side of public welfare, and some day the fossilized anti-medical politician will lay aside his earthly burdens and shovel coal. Then perhaps a new man with up-to-the-minute ideas will take his place, and the people will reap the benefit—if they can stand the strain.

ARSENIZATION IN INOPERABLE CANCER

Dr. G. Betton Massey, in the *American Journal of Surgery* for December, 1911, in a "Preliminary Note," read before the American Electro-Therapeutic Association, discusses the use of arsenicum shaped into an electrode for the destruction of cancers that are considered inoperable. Zinc and mercury have been employed in the same manner with some degree of success, but Massey has experimented with arsenic in a few cases that are still under observation and treatment, and he is of the opinion that greater benefits may be accomplished with arsenic than with the zinc-mercury electrodes. Since the paper was written the Powers, Weightman, and Rosengarten Co., of Philadelphia, are now supplying electrode crayons of arsenicum. The destruction of growths with arsenic ions shows greater irritation, odorous sloughs, and better reaction in the surrounding tissues. The sarcomatous sloughs following the application of the crayon with a current of electricity of from 50 to 300 milliamperes for a period of thirty minutes daily, or thrice weekly, shows that each patient subjected to the treatment has improved in general health much more than under the zinc-mercury ions.

There is an increase in red blood-corpuscles or hemoglobin percentage and a decrease in leukocytes and improved appetite, color, and strength. Arsenic was found in the feces and urine, but in no case was there evidence of the absorption of a toxic dose, although large currents were used almost daily for five months.

No mention is made of the application of formalin which has found favor with some operators. The use of arsenicum by electricity was suggested to the author after the announcement of salvarsan.

The application of arsenicum by the electrical current should be undertaken only by one skilled in electrotherapy, and the operator must be possessed with patience, skill, and enthusiasm, otherwise the outcome will be fruitless.

A DAY WITH THE MINNESOTA STATE BOARD OF HEALTH

The program for the January 9th meeting of the State Board of Health was of such a varied character that its publication will give professional and lay readers an idea of what is done at a regular quarterly meeting. Before giving the items which make up this day's budget, it must be explained that nine medical men, appointed by the governor, constitute the Board. Of these nine members, five reside in or near the cities of St. Paul and Minneapolis and constitute the executive committee of the Board. It is the duty of this committee to meet about once a month, and not infrequently two or three meetings are called in the month preceding the quarterly meeting. These meetings usually last from three to five hours, and all matters, new and old, are discussed, and endorsed or eliminated from the completed program. Occasionally outside advice or assistance is called in, such as representatives from the office of the Superintendent of Public Instruction, officers from hospitals, architects, and a representative from the Attorney-General's office, in order that the committee may proceed intelligently. The report of the executive committee is taken up by the full Board, and the recommendations are again discussed before final action is taken.

The items as they appear begin with—

1. The roll-call, done by the stenographer.

2. Minutes of the previous meeting, read or considered read according to circumstances.

3. Election of officers, which is the work of a few moments, as there is no strife for positions.

4. Report from the Epidemiological Division.

5. Report from the Laboratory Division, which includes the branch laboratories.

6. Report from the Engineering Division.

7. Report on Vital Statistics, which is a much-misunderstood item, usually looked upon with indifference by physicians and county officials until the purpose of the Division is explained, as recently happened. A physician who made light of this work was confronted with the necessity of securing proofs of his birth and ancestors which brought him an inheritance of $40,000. This man now firmly believes in vital statistics.

These reports are in the hands of each member of the Board one week before the regular meetings, and any recommendations or new items are discussed with the head of each division.

8. The establishment of a new branch laboratory at Mankato. This was ordered after many meetings with officers of the Board at Mankato, and the appearance of physicians from Mankato at the executive committee meeting in St. Paul. It can be readily seen that this was an important matter and required the fullest discussion and investigation before entering upon the contract. It will be of great help to Southwestern Minnesota.

9. The branch laboratory at Duluth had to be re-officered, as Dr. Tuohy resigned the position of director, which he held for several years.

10. Antityphoid vaccine. The question of supplying State Institutions with vaccine, if they so desired, was left optional with them.

11. A portable hypochloride plant. This is devised for immediate transportation or, in case of greater need, constitutes a simple manner of rendering water clean at lumber camps and other places where typhoid frequently prevails.

12. Co-operation with the U. S. Geological Survey.

13. Permission for Prof. Bass, the sanitary engineer of the Board, to attend certain meetings of engineers in New York.

14. The publication of papers on "The New Public Health" in The Journal-Lancet. These papers are prepared by Dr. Hill and are passed upon by each member of the Board before publication. These papers are educational in character, and they are to be syndicated for the Northwestern press. The preparation of these papers and the endorsement of them by the Board has been done with the utmost care and much good is expected from them.

15. A circular letter of instruction, for the benefit of county-school boards.

16. Water problems at Minneapolis, Winona, and Brainerd. This was the largest item in the budget as it opened up the problem of the police powers of the Board toward the pollution of the Mississippi River and, incidentally, other streams. The matter is in the hands of the Attorney-General and his assistant, Mr. Hilton, who is the official advisor of the Board. The subject will be acted upon at the March meeting.

17. The securing of the services of Dr. Hoag of Berkeley, Calif., for ten months as lecturer throughout the state, particularly at the meetings of county superintendents and teachers, normal schools, and at other educational conventions.

18. An inspector on the Range. This the Board is unable at present to provide because of a lack of funds and lack of co-operation on the part of the owners and managers of mines.

19. District medical health officer and medical school-supervisor. This is a much needed office which may come later.

20. Next biennial report, to be ready before the next legislature meets.

21. Consideration of intestinal discharges as a medium for the transmission of diphtheria and other diseases than typhoid.

22. To extend diphtheria antitoxine systems and stations, in order to help remote districts. This is a money-saving plan for poor people, and the effort is heartily approved by the makers of antitoxines.

23. Regulations relating to schools. The State Superintendent of Public Instruction and his assistants met with the Board and adopted advisory regulations. This required much time, but was well worth the effort.

24. Regulations relating to hospitals and their construction and management.

25. Regulations relating to stables.

26. Appointment of Dr. Tuohy as delegate to the International Tuberculosis Congress, who will attend at no expense to the State, as he goes at his own expense for study.

27. The appointment of Dr. Bracken as delegate to the American School Hygiene Association.

28. An address by Dr. Bracken before the National Meat-Packers' Association, the expenses to be paid by the Association.

29. Dr. Bracken to investigate health conditions in Denmark, Norway, and England. Expenses ordered by the Board.

30. The appointment of a State representative to act as health officer at Belle Plaine, which happens to be the only borough in the State where the people may defy the health officer of the township.

31. Future work in tuberculosis.

32. Authority given to executive officer to withdraw appointments from any sub-registrars of vital statistics not properly performing their duties.

33. The appointment of Dr. Watkins of Washington to supervise vital statistics in the executive office and over the State. He is a man of experience, secured in a most fortunate manner.

This program shows the immense amount of detail work supervised by the Minnesota State Board of Health, which should have the hearty co-operation of every physician and layman in the State.

IMPORTANT NOTICE TO THE SECRETARIES AND MEMBERS OF THE MINNESOTA ASSOCIATION

At the last meeting of the Minnesota Association, the fiscal year was changed and made to run with the calendar year.

The present fiscal year will end December 31, 1912.

The roster will be made up, as usual, on April 1st. The current annual dues are $2.25, which includes membership dues in the Association to December 31st, and the membership cards issued by the State Secretary will show this.

In December, 1912, another roster will be made up, at which time the annual due for 1913 will be collected, and will be $3.00; and then the fiscal year of the local societies and the State Association will begin on January 1st and end on December 31st.

CORRESPONDENCE

INSPECTED MILK

Minneapolis, Jan. 24, 1912.

To the Editor:

The milk secured through the Hennepin County Medical Society's "inspected milk" has reached the average bacterial count for its first month of 18,000 to the cubic c. c. It has often been at 8,000. Our contract requires it to be inside of 100,000. At that grade it would be worth more than 10 cents, its present price.

Such milk should be used in other cases than those of its designed use, infant-feeding. The sick in homes and hospitals should have it, and physicians should insist on this.

If, as in St. Paul, large amounts of 15-cent milk are used in hotels, cafes, and dining-cars, then our grade of milk at even a larger price than at present should be used in all our better homes and public dining-rooms.

In the improvement of our entire milk supply and in the interest of public health our physicians and our active citizens can make no better effort than this.

We believe that producers are ready, and it remains for us to make the demand insistent.

Respectfully,
By Geo. D. Haggard, M. D., Chairman.

REPORTS OF SOCIETIES

NICOLLET-LE SUEUR COUNTY SOCIETY

The annual meeting of the Society was held in Le Sueur on Jan. 2d, with twelve members present.

Papers were read as follows: "Chemistry of Food," by Dr. H. D. Valin, Mankato; "Myxedema," by Dr. F. P. Strathern, St. Peter. Officers were elected for the current year as follows: President, Dr. D. W. McDougall, Le Sueur; vice-president, Dr. H. A. Hartung, Le Sueur; secretary, Dr. J. E. Le Clerc, Le Sueur; treasurer, Dr. J. W. Daniels, St. Peter; delegate, Dr. H. A. Tomlinson, St. Peter.

J. E. Le Clerc, M. D., Secretary.

UPPER MISSISSIPPI SOCIETY

The annual meeting of the Society was held at Brainerd on Jan. 12th.

Clinics were held at the Northern Pacific and St. Joseph's Hospitals. Papers were read as follows: "Clinical Methods and Clinics," by Dr. Ohlinger, the Sanatorium; "Office Management of Minor Injuries," by Dr. H. F. Allen, Staples; President's Address, by Dr. Paul Kenyon, Wadena.

Officers for 1912 were elected as follows: President, Dr. C. F. Coulter, Wadena; vice-president, Dr. C. F. Allen, Staples; treasurer, Dr. Paul Kenyon, Wadena; secretary, Dr. G. H. Lowthian, Akeley; delegate, Dr. L. M. Roberts, Little Falls.

G. H. Lowthian, M. D., Secretary.

GRAND FORKS (N. D.) DISTRICT SOCIETY

The first open meeting of the Society was held on Jan. 10th at Grand Forks, in the Commercial Club rooms. The purpose of the meeting was to present to the public problems of physicians which are of special interest to laymen.

The following is the program of the meeting: "The Proper Food for the Convalescent," Miss M. E. Sutherland, Department of Domestic Science, Public Schools; "The Education of the Nurse," Miss B. Erdman, R. N., Director, Course for Nurses, State University; "District Nursing and School Nursing," Miss L. Packenbusch, Visiting Nurse, Associated Charities; "The Duty of the Public in Infectious and Contagious Diseases," Dr. A. A. Westeen, Health Officer, Grand Forks.

The papers were discussed by Drs. Williamson, Ruediger, Mulligan, Campbell, and Healy.

The annual election resulted as follows: President, Dr. A. A. Westeen; vice-president, Dr. John Montgomery; treasurer, Dr. C. S. Marsden; secretary, Dr. G. M. Williamson; delegates, Drs. J. E. Countryman and H. H. Healy.

G. M. Williamson, M. D., Secretary.

CASS COUNTY (N. D.) SOCIETY

The Society met at Fargo on Jan. 19th, with twenty members present.

After a dinner at the Hotel Gardner, the annual reports of officers were made and some general business transacted.

The following were elected officers for the current year: President, Dr. M. P. Rindlaub; vice-president, Dr. A. W. Skelsey; secretary, Dr. William Nichols; treasurer, Dr. J. L. Savage.

NORTHWESTERN DISTRICT (N. D.) SOCIETY

The Society held its annual meeting at Minot on Jan. 16th, with a large attendance.

The work of the Society during the past year has been very gratifying to all the members.

Dr. Andrew Carr presented some clinical cases of special interest, which were discussed by several members.

The new officers for 1912 are as follows: President, Dr. Andrew Carr, Minot; vice-president, Dr. T. N. Yeomans, Lansford; secretary and treasurer, Dr. F. E. Wheelon, Minot; member state defense committee, Dr. F. K. Kolb, Granville; delegates, Dr. R. H. Ray, Garrison, and Dr. J. D. Taylor, Minot.

THE SIXTH DISTRICT (N. D.) SOCIETY

The Society met at Bismarck on Jan. 9th, and held one of the best meetings in the history of the Society.

Papers were presented as follows: "The Medical Practitioner in the United States Army," by Major L. Brechemin, Ft. Lincoln; "Hydrotherapy," by Dr. N. P. Thilen, Wilton; "Report of Two Cases of Cesarian Section," by Dr. A. M. Brandt, Bismarck.

Dr. E. P. Quain gave an interesting and informing account of the meetings of the Southern Surgical Association, held at Washington, and the Western Surgical Association, held at Kansas City, both of which he had attended.

SOUTHERN MINNESOTA ASSOCIATION

The Association held its annual meeting at Mankato on Jan. 16th. This was the first meeting since the merger with the Minnesota Valley Society. The meeting was largely attended and was one of large interest. Dr. Theo. L. Hatch presided in the absence of Pres. Fritsche.

Papers were read by Dr. W. C. Chambers, of Blue Earth; Dr. S. Marx White, of Minneapolis; Dr. O. I. Way, of Claremont; Dr. Theo. L. Hatch, of Owatonna; Dr. W. A. Dennis, of St. Paul; Dr. H. Z. Giffin, of Rochester; Dr. Leda J. Stacy, of Rochester; Dr. W. E. Browning, of Caledonia; and Dr. M. H. Cremer, of Red Wing. Dr. J. W. Andrews, of Mankato, gave a paper on the late Minnesota Valley Medical Society.

The Blue Earth County Society tendered the Association members a banquet, which was an enjoyable affair.

The next meeting will be held at Albert Lea in mid-summer.

NEWS ITEMS

Dr. T. M. Joyce has moved from Anamoose, N. D., to Janesville, Minn.

Drs. Hagan and Distad, of Williston, N. D., have dissolved partnership.

The St. Paul Free Medical Dispensary cared for 264 new cases in December.

Dr. Fin Koren has become associated with Drs. Giere and Johnson, of Madison.

Dr. Henry B. Cole, of Black River Falls, Wis., died last month at the age of 78 years.

Dr. A. N. Collins, of Austin, has sold his practice to Dr. Chas. C. Allen, of Pipestone. Dr. Collins has moved to Duluth.

Dr. Robert Rome, of Minneapolis, went to Philadelphia in November to attend the Clinical Congress and thence to Florida. He is expected home this month.

The hospital formerly conducted by Drs. Hagan and Distad of Williston, N. D., has been sold to Mrs. O. E. Hineline, and will be conducted as a general hospital.

The Health Commission of Minneapolis has ordered that all conductors and motormen in the street-cars be vaccinated, cases of smallpox having been discovered among them.

Dr. Frederick A. Olson, of the Mayo staff, Rochester, has been engaged as Research Assistant in Medicine at the State University. Dr. Olson is a Rush graduate, class of '08.

Dr. J. W. Lenfest has moved from Bowbells, N. D., to Ambrose, N. D. Dr. Lenfelt graduated from the University of Minnesota in 1903, and has practiced at Bowbells since that date.

Dr. Charles G. Nordin, State University, 1910, who has been in the City and County Hospital of St. Paul for the past year, has became associate of Dr. Joseph Nicholson, chief surgeon of the Northwestern Hospital of Brainerd.

Dr. Albion Barnard, one of the oldest physicians in Minnesota, died in Minneapolis on Jan. 12th at the age of 89. Dr. Barnard was in the medical service during the Civil War, and was, for ten years, physician to the Leech Lake Indians.

The new McKennan Hospital at Sioux Falls, S. D., gave the physicians of the city a banquet, the attendance being gratifyingly large. The establishment of a training-school for nurses was discussed, and it was announced that a superintendent for such a school had been obtained in Chicago.

The Mankato Branch of the State Board of Health Laboratory is to be in charge of Dr. C. C. Pratt, of St. Paul, and not of Dr. A. J. Chesley, of Minneapolis, who is an indispensable associate in the Board's Division of Epidemiology. We, unfortunately, in our last issue, sent him to Mankato. Our false informant is pardoned.

At the January examination of candidates for license to practice in North Dakota, the State Board of Examiners introduced a feature new to their examinations. The examination was conducted at the College of Medicine of the State

University, and practical tests in dissection, anatomy, and physiology were given. There were fifteen candidates, and twelve of them were given licenses.

An auxiliary society has been formed by the wives of members of the St. Louis County Society. Officers were elected as follows: President, Mrs. M. S. Hirschfield; first vice-president, Mrs. A. E. Walker; second vice-president, Mrs. J. A. McCuen; secretary, Mrs. E. L. Tuohy; treasurer, Mrs. Homer Collins. The new society will play a prominent part in the social life of Duluth. Similar societies now exist in St. Paul and Minneapolis.

The series of free lectures to be given under the auspices of the Hennepin County Medical Society was opened in the City Library building on Jan. 19th, by Dean F. F. Wesbrook and Prof. R. O. Beard. The subject was "The Healthful Citizen in the Healthful Community." Dr. Wesbrook dwelt on the duties, opportunities, and failures of the public to maintain proper health conditions, while Dr. Beard spoke of the work of the individual as regards his own health. The attendance was good.

The first annual meeting of the directors of the Mandan (N. D.) Hospital was held last month, and the reports showed a gratifying condition of the hospital and the work of its first eighteen months. The investment in the hospital is $50,000. The number of patients admitted in 1911 was 268. There were 65 operations performed, 21 of which were major operations. The prices are moderate. Only one room (elegantly furnished) brings for board and nurse $25; four bring $20 each; several $15 each; and beds in small wards bring $12 each. Three graduate nurses are employed.

PHYSICIANS LICENSED AT THE JANUARY (1912) EXAMINATION TO PRACTICE IN NORTH DAKOTA

Blair, A. K	Hampden
Botsford, L. P	Valley City
Fjelder, H. O	Abercrombie
Floow, Arnt F	Winnewaukan
Morrow, Thos. M	Minot
Munier, H. J	Valley City
Nygaard, Gabriel	New England
Rumreich, E. A	Pisek
Schierbaum, A. F. E	Hebron
Spear, A. E	Belfield
Vallancey, I. H	New Rockford
Wareheim, G. F	Valley City

PHYSICIANS LICENSED AT THE JANUARY, 1912, EXAMINATION TO PRACTICE IN MINNESOTA

UPON EXAMINATION

Clay, Frank H	Hamline	1910
Deming, Ralph	Hahnemann, Pa.	1902
Gotham, Chas. Lewis	Rush	1911
Graff, Jas. Brown	Pennsylvania	1910
Guilmette, Robert W. H	Manitoba	1907
Lajoie, John Michael	Toronto	1911
Merrick, Geo. E	P. & S., Baltimore	1903
Otto, Henry C	Louisville	1908
Wilcox, Franklin S	Hahnemann, Pa.	1894

BY RECIPROCITY

Arminen, Karl Vilhelm	Rush	1907
Arnold, Elmer Wm	Nebraska	1907
Buell, Hiram Allen	P. & S., Wisconsin	1910
Ekrem, John Mathias	Hamline	1903
Gleysteen, Dirk	Michigan	1895
Johns, David R	Col. of M. & S., Chicago	1910
Koljonen, Heikki	Alexander U., Finland	1903
Lee, Thos. Alex., Jr	Geo. Washington	1908
Moulton, Arthur B	Medico-Chirurg.	1900
Nelson, David E	Col. M. & S., Chicago	1909
Ustick, Clarence M	Hahnemann, Pa.	1890

STOLEN BOOKS

During the past sixteen months the following books were taken from the office of a Minnesota physician: Hare's "System of Practical Therapeutics," Vols. I and II, 1910; "Boston and Ander's Diagnosis," 1911; Bergey's "Principles of Hygiene," 3d edition, 1909; Hughes' "Practice of Medicine," 10th edition, 1911. Any physician who may have purchased any of these books, except from a reliable dealer, will confer a favor by notifying this office. Address B. A., care of this office.

AUTOMOBILE WANTED

A five-passenger 1910 or 1911 model, medium-priced car. Have choice 120-acre prairie tract or 160 acres of improved land in Red River valley to exchange. Describe car in first letter. Address R. H., care of this office.

FOR SALE

One instrument-cabinet. Quarter-sawed oak with six glass shelves with ground and polished edges. Shelves 8½x36 inches. Glass doors closely fitting. Specially made. Bottom drawer. Size of cabinet, 10½ inches deep, 38 inches wide, 54 inches high.

One bacteriological incubator. Copper, asbestos covered, enameled, water-jacket, with thermo-regulator and safety-lamp complete. Inside dimensions 9x9x12 inches, in good condition.

Also one Zentmayer Photomicrographic camera with stand. Inquire of Dr. J. L. Rothrock, 514 Lowry Building, St. Paul.

Doctor: If you want practical postgraduate work during fine season in the delightful city, write for particulars. New Orleans Polyclinic, P. O. Box 797, Postgraduate Medical Dept., Tulane University of La.

PUBLISHER'S DEPARTMENT

ARTIFICIAL LIMBS

The manufacture of artificial limbs has reached immense proportions, both because of the large number of people annually maimed, by disease or accident, and because the American-made artificial limb has reached a remarkable degree of perfection.

These limbs fall into three classes: the single socket, the single slip-socket, and the double slip-socket. The first class has nothing but cheapness to recommend it, and the second class is good as far as it goes; while the third class is far superior to the second, and it is manifestly so.

The second, or single slip-socket, provides very well for the jar produced in walking upon smooth ground or a floor. It makes no provision for the tortion-movement of the natural gait and that due to walking on uneven surfaces. It also prevents the wearer from flexing the knee, beyond a slight degree, when sitting down, because the rim of the lower part of the artificial leg cuts or "cords" the under side of the leg above the knee-joint.

The Winkley artificial limb is the only one, we believe, made with a double slip-socket and with attachments that eliminate the cording above spoken of and allow a natural flexing of the limb when the wearer sits down.

The inner part of the double socket of the Winkley limb is fitted like a glove over the stump, and this works in the outer socket like a ball-socket joint. Although it is required, in actual practice, to provide for only a small amount of tortion-movement, it is yet indispensable to the perfect limb.

This socket also laces up, as does the outer one, and thus the large amount of shrinkage of the new stump during the first two or three years, is provided for. It also makes an excellent limb on a stump below the knee less than two inches long, while such a stump will very frequently slip out of any other style of limb. On a stump so short the socket is made three or four inches long, and thus acts easily and naturally.

Many men having even two artificial limbs of the Winkley or double slip-socket variety, walk and move so naturally that the casual observer never knows that the one walking by his side is wearing artificial limbs.

To have developed such a limb is a masterful piece of workmanship, and could have been done only by scientific methods, and these are to be found in every department of the establishment of the Winkley Artificial Limb Company, where not a few of the skilled men have been employed for over fifteen years, working with machinery designed by themselves.

We have spoken of only what may be called the regular limb, that is, a limb made for the usual stump, whether this stump be below or above the knee. The Company makes limbs to fit any special case, such, for instance, as one to fit a stump only three inches in length in "the crotch," or one to fit a congenitally deformed leg, one perhaps only half the length of the natural leg; or it may be to fit one or both legs deformed by infantile paralysis.

The Company's office building and factory, built to meet the special needs of a rapidly growing business, would surprise, by its size and completeness, almost anyone not familiar with the extent of the business done by this Company, with a patronage, not only in every state of the Union, but in almost every country in the world.

Any surgeon or physician can obtain the Company's catalogue upon application, by addressing the Winkley Artificial Limb Co., Minneapolis, Minn.

PNEUMONIA

Pneumonia, especially cases of delayed resolution, respond promptly to the selective action of Pautauberge's Solution of Chlorophosphate of Lime with Creosote. This preparation antisepticizes the respiratory tract, stimulates the pulmonic circulation and rapidly allays pain and cough.

Pautauberge's Solution, moreover, rapidly and satisfactorily raises the general nutrition and thus contributes substantially to a restoration of vital resistance and the resumption of normal conditions. Invaluable in all bronchial or pulmonary diseases. Literature to physicians on request. Geo. J. Wallau, 6 Cliff Street, New York City.

WHAT IS BEST IN TONICS?

Many people, and perhaps a few physicians, are inclined to consider the terms "tonic" and "stimulant" as more or less synonymous and interchangeable. This, of course, is not the case, although some agents employed medicinally may partake of the properties of both and be properly known as "tono-stimulants." Strychnia, for instance, is a heart stimulant, but may also be considered as a general nerve and systemic tonic when given in small and frequently repeated doses. While a stimulant alone is sometimes indicated in conditions of emergency, its long continuance almost certainly produces an after depression. It is sometimes advisable, however, to give stimulant and tonic together in conditions of serious general depression, the first to "boost" the vitality and the second to hold it at the point to which it has been raised and to restore the general tone of the organism. An ideal combination of this nature is Pepto-Mangan (Gude) to which has been added the proper dose of strychnia, according to indications. This combination is especially serviceable in the convalescence of exhausting diseases such as typhoid fever, pneumonia, la grippe, etc. It is also of much value when the heart needs support and the general system requires upbuilding. Pepto-Mangan restores vitality to the blood by increasing the number of red cells and the percentage of hemoglobin, and the strychnia assists in rendering the combination a peculiarly efficient general bracer and permanent reconstituent.

COUGH OF PHTHISIS

In the treatment of pulmonary tuberculosis the mitigation of cough is frequently of prime importance, since the repeated effort to expel accumulations of perverted secretions of suppurative materials is often of such degree that pleuritic pains are intensified and the patient is reduced to a state of extreme weakness. Furthermore, the interruption of sleep caused by frequent acts of coughing invariably bring about a marked depression of the vital forces.

The systematic administration of an agent which exerts a sedative influence upon the respiratory tract, modifies the pulmonary accumulations and invigorates the expulsive acts is usually expedient, for the reason that the comfort and general well-being of the patient is substantially improved by such a course. It is, however, judicious to avoid the administration of any drug which is capable of producing by-effects that are detrimental, in any way, to the welfare of the patient. It is particularly important that the use of drugs which cause digestive disturbances, constipation or addictions should be eschewed, for such drugs always interfere to a very considerable extent with reparative processes.

Glyco-Heroin (Smith) is singularly serviceable in the treatment of cough of phthisis, since, while possessing extraordinary cough-ameliorating, dyspnea-relieving, repair-promoting, sedative and expectorant properties, it is completely incapable of producing the slightest untoward effects.

The appended clinical report affords additional information concerning the utility of Glyco-Heroin (Smith) in the treatment of cough of phthisis.

PREVALENT DISEASES

Each change of season brings with it its diseases seemingly peculiar to the time. At this season, when pneumonia and bronchitis demand the call of the physician, literature presenting the experience of fellow practitioners, in the successful handling of these cases, would seem most apropos.

Dr. Charles Buck of Cincinnati presents in the Bloodless Phlebotomist for January his experience in handling cases of pneumonia, and he also relates some facts in the treatment of lumbago.

"Broncho-Pneumonia," with supportive, as well as local, treatment in all its details, is the subject of the paper of F. A. Kautz, also of Cincinnati.

Dr. E. Clinton Murray, of Houston, Texas, relates his experience and treatment in a case of pneumonia in an eighteen months' old baby, and Dr. J. C. Klippinger, of Independence, Kansas, presents a "Different Technic in Pneumonia," which is decidedly original. In abstract his method is to apply the local dressing in a manner which gives the intercostal muscles a chance to functionate without restriction from bandages. This symposium is closed with a paper from Dr. W. A. Radue, of Union Hill, N. J., upon "Acute Pleurisy and a Successful Abortive Treatment."

Besides the papers referred to, upon the subject of Chest and Throat diseases, much additional information is given. One in particular is the "Rational Influence of Hot Applications" by that well-known therapeutist Dr. Finley Ellingwood, of Chicago, Ill.

A postal card addressed to the Bloodless Phlebotomist, No. 57 Laight Street, New York, will bring you a copy of the January issue.

A FINE LINE OF STERILIZED SOLUTIONS

Hermetically sealed glass ampoules containing sterilized solutions of important drugs for hypodermic use have assumed a commanding place in medicine in a comparatively short period of time. Two or three years ago, seeing the tendency in this direction, Parke, Davis & Co. brought out a modest line of something like a half-dozen formulas, notable among them being solutions of Adrenalin, Codrenin, and Cacodylate of Sodium. From this small beginning the line has expanded until now the company announces a total of about twenty distinct formulas. The full list, we understand, is now appearing in display advertisements in the leading medical journals of the country. Physicians who are interested in this advance in hypodermic medication—and every physician ought to be—will do well to search out these advertisements and familiarize themselves with the comprehensive line of solutions therein offered.

Solutions provided by the glaseptic ampoule, it is obvious, have several advantages over those prepared in the ordinary manner. They are ready for immediate use; there is no necessity to wait until water can be sterilized and cooled. Accuracy of dose is ensured, each ampoule containing a definite quantity of medicament. The solutions are aseptic; they are permanent.

THE TEST OF A TONIC

The field and function of a systemic tonic is generally understood and appreciated by both physician and patient. To stimulate, whip or goad the vital processes is not to "tone," but, on the contrary, to ultimately depress. A real tonic is not a mere "pick-me-up," but some agent that adds genuine strength, force and vigor to the organism. The genuine tonic is a builder or reconstructor of both blood and tissue. Any agent which will increase the power of the blood to carry and distribute the life-giving oxygen is a tonic in the best and truest sense of the word. Iron in some form is an ideal tonic, as it builds up the vital red cells of the blood and the hemoglobin which is their essential oxygen-carrying element. Of all forms of iron, none is quite as generally acceptable and readily tolerable and assimilable as Pepto-Mangan (Gude). It creates appetite, tones up the absorbents, builds the blood, and thus is a real tonic and reconstructive of high order. It is especially desirable because of its freedom from irritant properties, and because it never causes a constipated habit.

COUGH

In mollifying or dispelling cough, irrespective of its exciting cause, it is emphatically prudent to administer that agent which effects relief without increasing apnea or dyspnea by impeding the expulsion of the breathing-passage secretions. Glyco-Heroin (Smith) relieves cough by augmenting the expectoration of accumulated secretions, evacuating the air-passages, allaying inflammation and diminishing the frequency and intensity of the paroxysms. It is incomparably quick in action, and effects the cure of cough without causing the slightest undesirable by-effects. The advantages of Glyco-Heroin (Smith) over preparations of opium, morphine, or codein are at once manifest. The preparation is impressively valuable in the treatment of chronic cough, asthma, whooping-cough, cough of phthisis, etc.

RIVER PINES SANATORIUM

The above institution for the treatment of pulmonary and surgical tuberculosis, is beautifully situated on the banks of the Wisconsin river, three miles from Stevens Point, Wis. The surroundings make for the health of the patients, and the management of the Sanatorium is modern in every respect. Dr. Hay, the medical director, and Walbridge, the surgical director, are men of high professional standing. They cordially invite correspondence from the profession of the Northwest, and they would be especially pleased to receive visits of inspection from any doctor seeking a suitable place for patients.

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SYMPOSIUM ON SYPHILIS

LABORATORY METHODS IN SYPHILIS: THE WASSERMANN REACTION*

By N. L. Linneman, M. D.,
DULUTH, MINN.

I shall take up only the Wassermann reaction in this paper, for there is not time to permit me to take up the spirocheta pallida.

I shall first give you a brief history of the Wassermann reaction and the principles of the same; and then take up the work accomplished by a few of the many workers in this field, taking up the results obtained in each stage of lues, separately.

In *Der Deutsche medizinische Wochenschrift* of May 10, 1906, a short article appeared by Wassermann, Neisser, and Bruck in which they stated that they had succeeded in getting a serum reaction for lues,—through the complement-fixation or deviation method described by Bordet and Gengou. In order that you may understand the complement-fixation or deviation theory, I shall give you a brief description of it. To attempt to give the process in detail, at this time, would consume all the space allotted to me for this paper, and, furthermore, unless accompanied by a practical demonstration, it would prove confusing to you. And yet it is most advisable that we all give the principles of this reaction enough thought and study so that we may intelligently interpret its meaning.

Stated in as few words as possible, Bordet and Gengou ingeniously elaborated the principles of immunity, first developed by Ehrlich. They were able to split up the underlying factors in immunity and show that we have a threefold union of infecting agent (antigen), antitoxins (antibody or hemolytic amboceptor), and intermediary substance, known as complement. Now, when we study syphilis, it is perfectly clear to us that we have the antigen in the form of spirochetæ. We have the antibodies, which are Nature's curative products, and the complement exists in all blood, so that we have the union of the three, but without any visible reaction.

It was next shown that, while the complement existed in all blood, it was found to be more uniform in the guinea-pig. Experiments with heat showed that the amboceptor was thermostabile (not affected by heat) for one-half hour at 56°C., but that the complement was thermolabile (readily destroyed by such heat). This afforded an easy means to inactivate the complement in any serum in which it might be a disturbing factor.

When an antigent is brought together with a serum containing its own antibody, in the presence of complement, all three unite, or we may say that the complement becomes *fixed* between the two. Yet this is still invisible. In order to make a demonstrable reaction we have to add to this principle of fixation of the complement that of hemolysis. The serum of the blood of an animal which has been injected with the blood-corpuscles of a different species, acquires the faculty (hemolytic amboceptor) of dissolving the same kind of blood-cells when the two are brought together, as even in a test-tube. The complement inherent in any serum may easily be disposed of by the application of heat, as spoken of above.

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* Read at the 43d annual meeting of the Minnesota State Medical Association at St. Paul, Oct. 5 and 6, 1911.

In practice, a rabbit is injected with sheep's blood; the resulting hemolytic serum (rabbit) is heated for one-half hour at 56°C. to inactivate its complement. Sheep's blood-corpuscles are then added to this serum, but hemolysis does not occur, on account of the absence of the complement. Add some complement (guinea-pig serum), and hemolysis occurs. The union of sheep's blood-corpuscles, hemolytic amboceptor (rabbit), and complement (guinea-pig) constitutes a hemolytic system, and, if united in proper proportions, the blood-cells are completely dissolved. Wassermann grasped these principles, combined the two systems, and his reaction is like algebraic equations: given a sufficient number of known quantities, the unknown can be determined.

His first antigent was a watery solution. Later, Mueller, of Vienna, and others, found that alcoholic extracts of liver could be used just as well and were more lasting. Still later investigators found that alcoholic solution of organs containing lipoid substances were easier to secure and satisfactory, so that now bovine, guinea-pig, or human heart may be used, and all of these extracts deviate the complement in the presence of luetic serum.

The technic of the reaction, then, consists in uniting, in one test-tube, the patient's serum, complement, and antigen; while, in a second tube, the antigen is left out. After sufficient time is given for the complement to become fixed, both tubes receive the same quantity of sheep's blood and hemolytic amboceptor, and both are incubated. Hemolysis will soon begin in the second tube, since the complement has not been disturbed. However, if the patient's blood contains luetic antibodies, the complement will have become fixed, in varying degrees, between these antibodies and the artificial antigen, and hemolysis will not occur in the first tube.

THE SERUM REACTION IN PRIMARY LESIONS

There are many workers in this field, and results have been decidedly varied. I will give you the results of a few:

	Cases Examined	Positive	Per cent
Blaschko & Citron........	63	57	90
Behring	206	80	39
Wassermann, Neisser, and Bruck	25	2	8

These results may mean a difference in technic, or the examination may have been made by some in the earlier, and by others in the later, stage of the primary lesion. These may also vary as to the earliest time of the appearance of the reaction. As a rule, the earliest time for the reaction to appear is given as four weeks after the infection, but Bruck and Stern and also Lesser claim to have gotten a positive reaction shortly after the infection occurred, and even before the initial lesion appeared.

Boas' examinations consist of 75 cases, of which 56 were positive. All these examinations were made before the secondary eruption appeared. His cases were all typical primary lesions, and the greatest number of the cases negative at this time; later they were found to be positive.

In a number of diseases the Wassermann may be of diagnostic value during this stage, as in ulcera venerea, especially in those cases which are infiltrated as a result of the treatment used; ulcus gangrenosum, peri-urethral gonorrheic infiltrations, excoriations, becoming infiltrated from repeated cauterizations, herpes genitalis, itch papules of the penis which are infiltrated, carcinoma, etc.

SECONDARY STAGE

The greatest amount of work has been done in the secondary stage of lues, and this is perhaps due to a diagnosis being easily made clinically during this stage.

	Cases Examined	Positive	Per cent
Blaschko & Citron.........	56	55	98
Lesser	204	186	91
Bruck & Stern............	163	129	79
Meier	84	78	93
Boas (untreated)	269	269	100
Boas (treated)	199	187	96
Mueller	137	121	91

Nearly all the men in this list examined both treated and untreated cases, except Mueller and Meier.

In Boas' 12 negative cases, 10 had previously been treated for one and one-half months, and the other two about four months. In all his negatives, the eruption appeared in a few isolated spots or places, no general eruption existing.

The reaction was found much stronger in his untreated cases (i. e., it took a smaller amount of the patient's serum to get the reaction), which bears out Citron's statement, that treatment has an effect on the reaction. The reaction is not affected, whether the secondary eruption is mild or severe. In a previously treated case with a severe recurrence, the Wassermann may be weak.

The reaction is supposed to be of diagnostic value in this stage, especially for the dermatologist, in differentiating it from psoriasis, lichen ruber, variola, rubella medicament exanthemata, pityriasis rosea, etc., also when only slight symptoms appear, such as iritis, loss of hair, isolated papules, larynx affections, and periostitis.

TERTIARY STAGE

I will now give you an outline of the work done by some of the men in tertiary syphilis:

	Cases Examined	Positive	Per cent
Blaschko & Citron	23	21	93
Bruck & Stern	31	14	45
Lesser	131	118	90
Meier	16	16	100
Mueller	46	41	89
Boas (untreated)	63	63	100

All of these men except Boas examined both treated and untreated cases.

Boas also mentions 9 interesting cases of aortic insufficiency without aneurism, of which 6 were positive. Three of these positive cases showed no signs of lues, although we know that this may be caused by lues. One of the cases with no luetic signs except a positive Wassermann, died later and, upon autopsy, proved to be a syphilitic aortitis. Tabes dorsalis and dementia paralytica, untreated, usually give a positive reaction. In the dementia paralytica you can get a positive reaction in a great number of cases from the spinal fluid. In tabes dorsalis the spinal fluid does not give a positive reaction very often. In hereditary lues, when symptoms are manifested the reaction is positive and is much stronger than in all other forms of the disease.

The question has been asked, Is hereditary lues contagious? It unquestionably is. One positive Wassermann reaction proves the presence of the infective agent; and where the infective agent exists the disease may be communicated by contact.

For long years we have believed tertiary lesions to be a result of lues, rather than a manifestation of lues itself. The work of Wassermann, also the discovery of the spirocheta pallida in tertiary lesions, has rather upset this old and comfortable idea. We now know that tertiary lesions are syphilis; and we also know that they are contagious. We now believe—and our belief is based upon careful experimental and practical work—that lues is not contagious when the Wassermann reaction is negative; this being particularly so during the later periods of the disease. With the return of a positive reaction, the disease again becomes active and, incidentally, contagious.

As I have cited in this paper, the reaction varies from time to time, being positive at one time and negative at another, according to treatment and according to the condition of the patient. This intermittent condition may mean that the disease is intermittent in its activity. It may mean that the disease is intermittently contagious, and this intermission in the contagion probably accounts, to a great degree, for the presence of healthy children of diseased parents.

THE EFFECTS OF TREATMENT ON THE WASSERMANN

In the mercurial treatment, even after twelve inunctions had been used, it has been found negative; but only a few cases have been reported. If the patient has had good antiluetic treatment, it has been found negative much oftener than if poor treatment has been given. In cases where the reaction is still positive it has been, as a rule, much weaker. In only a small percentage of the cases has the reaction been unaltered by treatment. The same is true if the mixed treatment has been used, as hydrargyrum cum KI., but if KI. is used alone, it will be found negative in a much smaller number of cases. In cases where the ordinary arsenic preparations were used, as Fowler's solution, Asiatic pills, etc., the results were similar to the cases in which hydrargyrum was used.

The reaction was found negative in cases where salvarsan was used as early as a week after the injection. The opinions vary as to the percentage of negatives after salvarsan is used. Wechleman first claimed that all his cases examined were negative after eight weeks, and others gave only a small percentage of negatives at this time.

In looking over the literature on this subject, the men practically all agree that where the Wassermann reaction is not negative after good treatment has been had, it has become much weaker, and that it is found positive in only a small percentage of cases. There are some cases reported where the Wassermann was negative before treatment, and became strongly positive after treatment.

Ehrlich reasons that this is due to the spirocheta pallida being killed by the salvarsan and; the endotoxin being liberated causes the reaction. The Wassermann reaction sometimes becomes positive after it has been negative, and this is claimed to be due to the spirocheta pallida not being killed, and the number alive is too small to give a reaction until they have sufficiently multiplied to give a positive again. Ehrlich says that a repeated negative after salvarsan, means a cure and if the reaction is still positive after a certain length of time, it is an indication for another treatment, because the patient is not free from the disease, although no other signs of the disease may manifest themselves.

That salvarsan is not well borne in children has been shown, and great care should be exercised in its use. Spirochetæ pallidæ are especially numerous in hereditary lues and the rapid destruction of them, following the injection of salvarsan, liberates so much endotoxin that a fatal result may occur. While in Vienna it was very interesting to me to watch these cases and note the effect of the treatment, both old and new, as shown by the Wassermann test. Gradually the reaction became weaker and weaker, and finally negative. When salvarsan was used we were more apt to see it become negative suddenly.

OTHER DISEASES WHICH GIVE THE WASSERMANN REACTION

Lepra tuberosa gives a positive reaction, but, on account of the rarity of the disease in this part of the country, it need give us no great concern.

MALIGNANT GROWTHS (carcinoma, sarcoma)

Weil and Braun in their 14 cases found 4 positives. Other men have occasionally reported a positive also, but Boas' 32 cases examined were negative and he claims that, on account of the ages of the patients, they might have had lues previously, and gives this as his reason for an occasional positive reaction.

MALARIA

In this disease the reaction has been found occasionally, but, according to the authorities in this line, it disappears with the disease.

TUBERCULOSIS OF LUNGS

A positive reaction has sometimes been found in tuberculosis of the lungs, but in these cases it has been a very weak reaction. We must also bear in mind here, as on several occasions it has been proven after death, that lues had existed. There are numerous other diseases which I will not mention, where a positive reaction has been reported, but here again the possibility of a luetic history must be considered.

In summing up the value of the Wassermann test in the diagnosis of lues, authorities are pretty well agreed that a positive reaction means lues, in some form, and Citron went so far as to say specific treatment should be used. He gives five reasons for making this statement:

1. That the reaction is as good as constant in all manifestations of lues.

2. That the reaction disappears with the treatment as the symptoms disappear, and reappears with the recurrence of the symptoms.

3. That the reaction is affected in the treatment of latent lues, as well as in fresh cases.

4. That a patient giving a positive reaction gives birth to luetic children, infects others, and may have a recurrence herself.

5. That monkeys can be reinfected if the reaction has become negative, and he never has succeeded in reinfecting them as long as they had a positive reaction.

The negative reaction may not mean so much, and some of the authorities claim it has absolutely no meaning; but, on the other hand, it is said that a luetic patient, having had good antiluetic treatment and having given repeated negatives over a continued period of time, is quite sure to be free from the disease and may be permitted to marry.

I wish to append this record of my own cases: 55 cases examined; 23 were positive.

	Positive
Primary	1
Secondary	7
Gumma	1
Locomotor Ataxia	2
Iritis	1
After "606"	3
Ulcers	2
Hereditary	1
Headaches (nightly)	1
Headaches and pain in leg	1
No signs present (had syphilis)	1
Osteitis (clavicle, leg and wrist)	1
Optic atrophy and locomotor ataxia	1
	Negative
After "606"	4
Tabes	1

FOR DISCUSSION SEE PAGE 92

THE CONTRIBUTION OF THE SPINAL FLUID TO THE DIAGNOSIS OF SYPHILITIC DISEASES OF THE NERVOUS SYSTEM*

By C. R. Ball, M. D.
ST. PAUL

The close relationship of syphilis to the nervous system, the frequent occurrence of the lesions caused by it, the great diversity of these lesions, the consequent wide difference in the symptoms presented by them, and the vital importance of an early recognition of the origin of these lesions, have long given this subject a prominent and attractive position in neurology. In recent years the discovery of the spirocheta pallida by Schaudin, the beginning and development of cytodiagnosis, together with the test for globulin in the spinal fluid, and the discovery of the Wassermann reaction, have done much to increase this interest. We are scarcely able in the abstract to realize the immense advantage which these new reactions have brought to us. It is only when we consider our recent position in diagnosis with reference to this subject that we can estimate their great value.

As syphilis can cause almost any lesion of the nervous system, the neurologist often took exactly the opposite position in regard to his patient that the court holds with reference to the prisoner at the bar. The court holds the prisoner at the bar innocent until he is proven guilty. The medical man considered his patient guilty, or, in other words, a syphilitic, until he had proven himself innocent by swallowing a certain number of grains of potassium iodide daily. The patient was in a position where he could disprove his guilt only by taking his medicine. The old medical dictum, which has been taught to generations of medical men, "When in doubt give potassium iodide," does not seem to have any longer a reason for its existence. It should be supplanted by one more in harmony with the spirit of modern medicine. When in doubt, go to work, take a Wassermann of your patient's blood and spinal fluid, make the test for the globulin reaction, and count the lymphocytes in the spinal fluid, and in more than 99 cases in 100 positive, scientifically obtained information will take the place of a guess.

Heretofore our sole reliance in diagnosing a case of syphilitic disease of the nervous system has depended on factors which were often indefinite and incomplete and frequently failed us miserably. A short consideration of these factors will better enable us to appreciate the advantages in diagnosis which we may now obtain by an examination of the spinal fluid. The personal history is, of course, important when one is obtainable. It not infrequently happens that the history is not obtainable because of the mental condition of the patient. A positive admission with regard to infection must be considered of the greatest value, while a denial has not much worth. It is hard to conceive that any patient who voluntarily seeks a physician in order to obtain relief from physical suffering, would persistently deceive the physician and deny an infection, if he were conscious of ever having had one. According to both Nonne and Erb, the conscious denial of a former syphilitic infection in a patient who thoroughly understands the importance of a truthful answer, is exceedingly seldom. On the other hand, there is no doubt but what the physician is often confronted with patients presenting definite luetic symptoms, who are absolutely ignorant of having ever had the disease. Fournier says that in 50 per cent of his cases of syphilis in women the history of an infection was absent. Hirschl, in 63 cases of lues in Lang's clinic in Vienna, was able to get a positive history in 54 per cent of the cases; a doubtful history, in 9.5 per cent; and no history whatever in 36.5 per cent.

One should always be on his guard against being misled by a patient's negation, no matter how emphatically it is given. A careful investigation of the family history has usually been the next resource of the physician in his search for definite evidence. The history of several miscarriages, where they have occurred without other demonstrable cause or feeble children, one or more of whom may have died at an early age with convulsions, has been regarded as confirmatory information in the history of a patient presenting suspicious symptoms. Experience has, we believe, justified us in this. On the other hand, however, we have placed too much importance on the absence of such a history. The personal and family history being negative, we have too often been inclined to allow our suspicions of syphilis to drop with reference to the patient presenting such negative history. As illustrative of this point, we will mention a case we recently saw in consultation. The patient was a man fifty years old who denied ever having had an infection. His wife had been pregnant only once, and then had given birth to a healthy, full-term child. The doctor with whom we consulted had assisted at the birth of this child and had given the child what medical care it had required since. He had never seen, in either the parents or child, the least symptom to make him suspicious of syphilis. The symptoms presented by this patient seemed so typical of a syphilitic meningitis that antisyphilitic treatment was advised. The prompt and complete response of this patient to the treatment left no doubt as to the correctness of the diagnosis.

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* Read at the 43d annual meeting of the Minnesota State Medical Association at St. Paul, Oct. 5 and 6, 1911.

Another illustration: A patient with general paralysis had a family of five children, all living and healthy; his wife had never aborted. Such histories as these, where one member of the family at least has been syphilitic, are not uncommon.

Our next recourse in making a diagnosis of lues has been the consideration of the subjective and objective symptoms presented by the patient. The character of the symptoms must depend upon the nature and location of the lesion. Syphilis attacks the nervous system in different ways, and the number of lesions which may be exhibited by it is more numerous than the colors in Joseph's coat. An exposition of these lesions would make a volume in itself. We wish only to point out and emphasize the fact that among all these lesions there are none which some other disease, such as multiple sclerosis for example, may not present. That there are none which may be said to be pathognomonic of lues.

Our next aid in specific diagnosis, and one upon which we have depended much, has been the response or non-response of our patient to antisyphilitic treatment. If our patient recovered under this treatment, he had syphilis, and *vice versa*. It is never absolutely sure that because one's patient recovers under antispecific treatment that his disease was specific. Nonne, in his book "Syphilis and the Nervous System," relates a case illustrative of this point. A man with spinal caries, which was not observable externally, seemed to make a good recovery under antisyphilitic treatment, when, as was later demonstrated, the improvement was in reality due to a spontaneous healing of the bone-tuberculosis and a gradual decrease in the spinal compression. On the other hand, one must recognize that not infrequently specific processes are encountered which do not yield to the administration of mercury and iodide. Both Gowers and Horsley have called attention to the fact that brain gummata do not respond to these remedies. Oppenheim has recently called attention to the necessity often of combining other remedies, such as arsenic and quinine, with the antispecific treatment before improvement occurs. One of my cases of cerebrospinal lues continued to grow worse under the administration of inunctions and potassium iodide. A change in the form and manner of giving the mercury combined with a quinine tonic caused a rapid and permanent improvement. There is no doubt but what many of us have given up our diagnosis of specific disease when we were right, simply because our patient failed to respond to the form and dose of the antispecific treatment which we prescribed.

The family and personal history, the symptoms of the patient, both subjective and objective, and the response to antispecific treatment, have been the factors upon which we have been compelled to depend for our diagnosis of lues until recently. How often these factors have left us in doubt we can but realize when we think back over the many cases in which, after a careful consideration of all of them, we have been compelled to say, "This may be a case of syphilis or something else." It is possible that it may be hysteria, multiple sclerosis, epilepsy, tumor of the brain, tubercular meningitis, apoplexy, spinal meningitis, Landry's paralysis, or what not.

Let us consider the recent additions to our armamentarium in the diagnosis of specific affections of the nervous system and the change they have made in our old position of doubt and uncertainty. We wish to consider the Wassermann reaction in the blood-serum, the Wassermann reaction in the spinal fluid, the globulin reaction as demonstrated by Nonne's Phase 1, and the significance of the increase of lymphocytes in the spinal fluid. The fear has been expressed that by the multiplication of reactions and tests, which seems to be the spirit of the times in medicine, there is an effort being made to reduce the practice of medicine to a rule of three, a sort of automatic drop-a-nickel-in-the-slot machine, where you pour in your reagent, obtain your reaction, and, lo and behold, your diagnosis is made. With reference to the above-mentioned reactions, or any other with which we are familiar, this is absolutely untrue. Each one of these reactions can be considered valuable only when construed by the clinician in accordance with the clinical facts presented. Much, in his book called "Die Immunitäts Wissenschaft," just recently published, speaking of the Wassermann reaction, says: "This becomes valuable only when the clinic controls it and, *vice versa,* it controls the clinic."

A brief consideration of this reaction is necessary in order to understand its significance in the diagnosis of specific nervous affections. The original idea of Wassermann that the reaction was a specific one, such as occurs when an extract of typhoid bacilli is brought in contact with the serum of a typhoid patient, has been abandoned. The reaction is at present considered as partly chemical and partly mechanical. It depends upon the presence of so-called antibodies in the blood-serum of syphilitics. These antibodies when brought in contact with other closely related substances of a lipoid nature, form a precipitate. This precipitate is of so fine a character that the only means we have at present of demonstrating its existence is in its ability to bind the complement and thus prevent or restrict hemolysis. The larger the number of antibodies the more completely the complement is bound and therefore the greater restriction of hemolysis, and *vice versa.*

The proving of the non-specific character of the reaction does not seem to have lessened its practical value in diagnosis. It has, however, destroyed the position of those who at first regarding the Wassermann as a specific reaction and obtaining it in the blood-serum of tabetics and general paralytics argued that these diseases were but later manifestations of an active syphilis in the nervous system. We may now consider the significance of this reaction, both in the blood and spinal fluid. In Dr. Nonne's clinic at Eppendorf, which is probably the largest clinic of nervous syphilis in the world, a positive Wassermann in the blood-serum of a patient is regarded as evidence that the patient has in some way and at some period of his life, come in contact with syphilitic virus, either as hereditary or acquired lues; not, however, that his present disease necessarily must be of specific origin. A negative reaction is made use of to exclude general paralysis, for, with very few exceptions, the blood-serum of a case of general paralysis gives a positive Wassermann. The application of the Wassermann in this clinic to the spinal fluid is made, not only according to the original Wassermann, but also for practical reasons after a modified method. This method was developed by Dr. A. Hauptman, assistant in the clinic, and Dr. Hössli, voluntary physician. This modification was devised because of the absence of the reaction in the spinal fluid in most cases of cerebrospinal lues and tabes when made according to the original method and using only 0.2 c.c. of spinal fluid. It seemed to Drs. Hauptman and Hössli that, since the blood-serum gave a positive reaction in specific cases, so should the spinal fluid in syphilitic disease of the nervous system. That the reason of its failure to do so by the original method was because the number of antibodies present in the amount of spinal fluid used was too small to bind the quantity of complement. Two methods then naturally suggested themselves to prove this contention: the taking of either a smaller amount of complement or a larger quantity of spinal fluid, the other factors in the experiment remaining the same. The latter method was chosen, always maintaining in the controls the double quantity of spinal fluid, as is done in the original reaction. The quantity of spinal fluid used in these experiments was 0.2, 0.4, 0.6, and 0.8 of a c.c. It was found from these examinations in almost all cases of cerebrospinal lues and tabes that the complement was bound in some cases when 0.4, many when 0.6, and still more when 0.8 of a c.c. of spinal fluid was used. On the other hand, in no case of functional or organic non-specific disease was this the case. The significance of this reaction may be stated in this way: If it is positive according to the original method, the greatest probalility exists that the case is one of general paralysis; in a very few cases, one of cerebrospinal lues; and, in exceptionally rare cases, one of tabes. In a very few cases of general paralysis, and in almost all cases of cerebrospinal lues and tabes, the Wassermann is only positive by the using of large quantities of spinal fluid, varying from 0.3 up to 1 c.c. in amount. What is called cytodiagnosis, depending upon the number and character of the cellular elements in the spinal fluid and also the increase in globulin, has an important bearing in the diagnosis of syphilitic affections of the nervous system. The number of cellular elements is best determined by staining them with a solution of methylene-blue and then counting them according to the Fuchs' Rosenthal method in a special counting-chamber provided for this purpose. The number of cellular elements regarded as normal is from 6 to 9; anything above this number is pathological. Nonne's Phase 1 is the reaction for globulin. It consists of mixing 1 c.c. of a saturated solution of ammonium sulphate with an equal quantity of spinal fluid. If an opalescence or a cloudiness of the solution occurs inside of three minutes, the reaction is considered positive. A cloudiness appearing after three minutes does not indicate anything. In all specific diseases of the central nervous system there is a striking increase in the number of cellular elements, and these elements are almost entirely of one kind. We have counted frequently over 200 lymphocytes in one drop of fluid. Phase 1 has been found to be positive in all luetic diseases of the nervous system, much less common in nonspecific diseases of an organic nature; and, what is even more important in all functional nervous disease, either with or without a history of lues, it practically never occurs. As an illustration of the value of this simple reaction, in diagnosis, a young man, 26 years old, with history of a specific infection two years previously, was struck on the head with a piece of iron tubing. He received a severe blow and was disabled for several weeks by the accident. Then, apparently recovering, he went to work again, working several weeks. One day after coming home from work he complained of loss of strength and inability to use his right arm and leg. He went to bed and seemed to be at times in a semistupor. During these periods it was difficult to arouse him sufficiently to make him talk or answer questions. At other times he would respond and talk quite naturally. He complained of headache and of not being able to sleep; his appetite was good. During this period he was receiving visits from a lawyer who was beginning suit for him against the company he was working for when injured. The question to be determined was whether the case was one of traumatic hysteria; or, if it had an organic basis, was it of syphilitic or traumatic origin? Physical examination was entirely negative. The reflexes on the side supposed to be paralyzed seemed to be exactly the same as on the normal side. There was not a single objective factor upon which to form an opinion. The character of the subjective symptoms, the absence of objective, the visits of the lawyer, and the conversation of the family with reference to the proposed suit, would cause one to think strongly of traumatic hysteria. In order to clear up the diagnosis, the spinal fluid was examined. A lymphocytosis and positive Phase 1 demonstrated the case clearly as one of cerebrospinal lues. Without the examination of the spinal fluid a positive diagnosis in this case would have been impossible.

This reaction in those cases which come to one with a history of syphilis or a positive Wassermann in the blood-serum, and present indefinite nervous symptoms, is invaluable in enabling one to determine whether these symptoms are functional or organic, and whether there may be a beginning active syphilis of the nervous system or a beginning tabes or general paralysis, or whether these symptoms are of a functional nature entirely. The relationship of the four reactions to specific nervous disease may be summed up in the following manner in general paralysis or taboparalysis. The Wassermann reaction in the blood is positive in 100 per cent of the cases; Phase 1 is positive in from 95 to 100 per cent; lymphocytosis is positive in about 95 per cent; Wassermann in the spinal fluid by the original method is positive in 75 per cent, and by the modified method with a larger quantity of fluid it is positive in 100 per cent.

In tabes the Wassermann reaction in the blood is positive in from 60 to 70 per cent of the cases; Phase 1 is positive in from 90 to 95 per cent of the cases; lymphocytosis is positive in 90 per cent. The Wassermann in the fluid in the original method is positive in from 5 to 10 per cent, and with the modified method, in 100 per cent.

In cerebrospinal lues, the Wassermann in the blood is positive from 80 to 90 per cent; Phase 1 is positive in almost 100 per cent, and negative rarely. Lymphocytosis is the same as Phase I. The Wassermann in the spinal fluid, original method, is positive in 10 per cent; modified in 100 per cent.

When we consider this recent splendid contribution of the spinal fluid to the diagnosis of nervous disease, we must appreciate what an advance has been made. We need no longer be placed in a situation where we are compelled to say this may be syphilitic disease, or it may be hysteria, neurasthenia, multiple sclerosis, epilepsy, apoplexy, Landry's paralysis, or still something else. But, in the light of the information to be gained by an examination of the spinal fluid, we may say confidently and positively this is or is not a case of specific disease of the nervous system.

DISCUSSION OF THE TWO PRECEDING PAPERS

Dr. R. H. Mullin, M. D. (Minneapolis): In discussing the laboratory methods used in the diagnosis of syphilis, there are several points of considerable importance which must be kept in mind. At present we have two methods employed in the laboratory differing considerably in principle, which may be used as aids to the clinician in making a diagnosis of lues.

The first of these is the actual demonstration of the causative organism, treponema pallidum, in a lesion. The other is the demonstration of certain substances in the blood which are formed in the reaction of the individual against the infecting microorganism.

The demonstration of treponema pallidum has the advantage of being applied early in the course of the disease so that a diagnosis may be made soon after the infection has occurred. The examination may be made from material collected either from the primary lesion or from mucous patches or from the condylomata. The organisms are not so frequently found in the tertiary lesions.

The successful demonstration of treponema pallidum in smears depends more on the care and thoroughness with which the material is obtained than upon the actual staining process that is employed to bring out the characteristics of the organism. Material should be obtained from the deeper portions of the lesion. The surface should be thoroughly cleansed and the serum squeezed out from the depths of the lesion. The smear should be as thin as possible. The organism can be demonstrated either by the dark ground illumination, by the India ink method, or by staining with one or another of the methylene azur combinations. Where possible it is advisable to check results by using all three methods. If the organism, which can be identified with a fair degree of accuracy by a trained observer from its morphology alone, can be found, a positive diagnosis of syphilis can immediately be made. If the organism is not found, it does not necessarily follow that lues is absent. In taking the preparations it must be remembered that the chances for successfully showing treponemata will be very considerably reduced if mercurial preparations, such as calomel or other caustics, have been used. This is particularly true of calomel, which seems to have a property of driving the treponemata away from the surface, making it very difficult indeed to find the organism in coverslip preparations. It is better, therefore, to attempt to make a diagnosis before local treatment of any kind is instituted.

The second laboratory procedure, now generally known as the Wassermann or serum test, involves an entirely different principle. Where this test is employed the diagnosis depends upon demonstraing in the serum of a suspected individual substances which are formed as a reaction against the infection, i. e., antibodies. Various modifications of the test originally described have been employed by different observers and a good deal of debate has ensued concerning the reliability of the various modifications. It would appear that the accuracy of the test depends not so much upon the particular modification that is used as it does upon the care which is employed in applying that test. It seems to be more a matter of the individual who is making the test than the particular variation that is used. It is needless to say that accurate and reliable results are best obtained when the test is made by an individual who has had considerable training in this line of work. There are certain conditions which will modify the interpretations which are to be placed upon the results. Where the patient is under the influence of mercury, frequently his serum will show a negative reaction even when undoubtedly he has active lues. In fact, it has been shown that if the serum of a mercurialized normal individual be mixed with the serum of an untreated luetic, a negative reaction will be obtained even though the serum of the luetic alone shows a positive reaction. Reliance, therefore, should not be placed upon negative findings where mercury has been recently employed.

Potassium iodide may also interfere in a similar way, although the evidence is not quite so strong. Some observers claim that over-indulgence in alcohol immediately preceding the taking of a specimen of blood will also affect the test in the same way.

The general opinion regarding the reliability of the test seems to be that it is a very valuable aid to the clinician so that where the results obtained from it verify the clinical findings, it can be assumed to be correct. Doubtless the recent discovery of Noguchi, that it is possible to obtain pure cultures of treponema pallidum will very shortly lead to other laboratory procedures which may be similarly used.

Dr. Burnside Foster (St. Paul): In the light of the events of the last eighteen months, the whole story of the treatment of syphilis must be rewritten, and I am inclined to think the preface, and possibly the first chapter, are before us. It has long been known that arsenic was a useful drug in the treatment of some cases of syphilis, but hitherto it has not been possible to administer it in doses sufficiently large to produce much effect upon the disease without doing great damage to the patient. Salvarsan has, to a certain extent, solved that problem. Salvarsan is rapidly destructive to the spirochetæ and does not injured the patient; however, the destruction of the spirochetæ is not the whole thing. We do not know that the spirochetæ are all destroyed by one or two doses of salvarsan, but we do know that after the use of salvarsan the clinical symptoms which have perhaps all disappeared, sooner or later reappear. One of the most important things that salvarsan does is to rapidly destroy the superficial lesions of the disease and thus render its contagiousness much less. Whether a prolonged series of intermittent bombardments of the spirochetæ with salvarsan or some similar preparation will ultimately bring about the result we are after we do not know, but we do know that, as at present used, salvarsan does not cure syphilis. Its use must always be followed up by mercury and iodide of potassium.

Those who have had much experience with the hypodermic or intramuscular use of preparations of mercury in the treatment of syphilis have seen just as spectacular and rapid disappearances of the clinical symptoms of the disease as after the use of salvarsan. I believe that a great deal of harm has been done, and will be done, by the false sense of security that has come after the disappearance of the clinical symptoms of the disease following the use of one or two doses of salvarsan. The patient is deceived into believing that he has been cured, and the neglect of subsequent treatment will be followed by the inevitable results. I do not believe that, at present, salvarsan can be regarded as the routine treatment for all cases of syphilis. It should be reserved for those cases where it is of the utmost importance that a rapid disappearance of surface lesions should be brought about or where mercury does not seem to be doing the work.

Many believe that, where salvarsan has been used early, the duration of the disease has been shortened, but it is quite too soon to say whether this is the case or not. Salvarsan, while a perfectly safe drug in the hands of those who follow a correct and perfect technic in using it, is capable of doing great harm if used indiscriminately or carelessly. There is at present considerable difference of opinion as to how salvarsan should be administered, as equally good results have followed all of the different methods which have been used. I feel quite sure that it will not be long before it will be furnished in some form which can be used more simply and with a less complicated technic than is the case at present. That arsenic as an adjunct, and an indispensable one, to our present weapons against syphilis, has come to stay, seems certain, but whether salvarsan, as at present used, is to remain, no one can say. My own feeling is that before very long it will be supplanted by some other preparation which will come into every-day office use, and which will be capable of administration by a simpler and safer technic.

Dr. A. S. Hamilton (Minneapolis): I do not know of any matter that could come before the society that would be of more importance in the matter of diagnosis than the symposium to which we have just listened. Whether it is of equal importance in all phases of medicine I do not know, but it is certainly of very great importance to those who deal with mental and nervous diseases. We have been accustomed to look upon a large portion of our cases as of very uncertain origin and have had insufficient data to guide us in the line of treatment. By the method outlined here it is possible to arrive at a satisfactory conclusion as to the actual condition in many instances.

I have been asked specially to discuss Dr. Ball's paper and will therefore confine my remarks to what he has said. I was glad he referred to two things in particular that we have been accustomed to rely upon to demonstrate the presence of syphilis, viz., the patient's statement and the therapeutic test and how little we can rely upon either, many times. We all know that patients will lie grievously as respects syphilis, but we must also arrive at the conclusion that patients are often honestly mistaken. I have recently seen two young men who served in the Philippine army, who admitted sexual irregularities, but who denied that they had any knowledge of having ever acquired syphilis. Both were greatly worried over some cerebral symptoms which had developed and I do not believe that men in that condition would have denied specific information if they had known of it. Both gave a positive reaction to the Wassermann test. One improved while the other did not, but the diagnosis is not settled just because the condition continues to improve under anti-syphilitic treatment. There are many cases of cerebral tumor, for example, that are not specific at all and yet which improve, at least for a time, under mercury and iodide. I remember particularly a case in the practice of another physician. A young man developed double vision, and the physician who had previously treated him said that he probably had had syphilis. He was put on anti-syphilitic treatment and there was a marked improvement. After a time the symptoms returned and he went and had the same treatment, but this time received no benefit. He then went to another physician who after some difficulty succeeded in removing a large sarcoma.

I was sorry that Dr. Ball was not able to say more about the cytology of these cases, because I believe that feature does not receive sufficient attention. A physician who has access to even a limited laboratory outfit can aid very greatly the accuracy of his diagnosis in all instances of real or suspected meningeal irritation by a cell study of the cerebro-spinal fluid. At the same time I think it is only fair to say that the result from the cell study of the cerebro-spinal fluid has not been as satisfactory as the study of the blood cells in the case of blood diseases for example. In other words, while the study of the cerebro-spinal fluid is of great value in diagnosis, we should not wholly and absolutely rely upon the findings to the exclusion of other clinical phenomena.

Dr. Charles R. Ball (Essayist): I think when we speak of the reactions obtained in making the Wassermann, we should state whether these results were obtained by the quantitative method or not; otherwise the conclusions drawn may be misleading, and particularly is this true with regard to the spinal fluid. There the reactions obtained with the original Wassermann and the quantative method are entirely different. A positive Wassermann depends upon the number of antibodies present in the spinal fluid, and for this reason with the original method, that is using only 0.2 c.c. of spinal fluid, the reaction is negative in the majority of cases of tabes and cerebrospinal syphilis. The only condition where we may regularly expect to find it with this quantity of fluid is in general paresis.

We should also not forget in reporting a Wassermann reaction that positives and negatives depend very much upon the treatment the patient has received. The metasyphilitic conditions, contrary to what one might expect, seem to be just as easily influenced by antispecific treatment in regard to the changing of their reactions from positive to negative as the specific conditions themselves.

Both of these factors, the treatment or non-treatment of the patient examined and the kind of Wassermann made, are exceedingly important considerations in the estimation of percentages with regard to positive or negative findings in both the syphilitic and metasyphilitic states.

The percentages given in my paper are taken from the results obtained in Dr. Nonne's clinic at the Eppendorfer Hospital in Hamburg, where I had the pleasure of working for several months last spring. So far as I know they have never yet been published.

THE NEW PUBLIC HEALTH—SECOND PAPER

CONTROL OF INFECTIOUS DISEASES

By H. W. Hill, M. D., D. P. H.

Director Division of Epidemiology, Minnesota State Board of Health

MINNEAPOLIS

(The previous paper indicated that belief in "general environment" as a serious factor in the spread of most infectious diseases has been abandoned, except concerning such environments as (a) influence the transmission of infectious discharges or (b) depress vitality beyond the limits of compensation of the body.)

It would appear that environments affecting bodily functions have little to do directly with the incidence of most of the specific infections,* notwithstanding that nutrition, temperature, fatigue, and alcoholism are generally credited with some effect, especially in pneumonia and tuberculosis.

Damp, cold, and fatigue perhaps precipitate the pneumonias, provided one of the infective agents be present. The environments that precipitate tuberculosis constitute a problem as yet unsolved. Very much is widely believed, and even more is freely taught, concerning this subject, but the evidence is tangled and often contradictory. "Poor ventilation," dust, dampness, etc., have all been accused, but very little has been proved concerning the real factors actually at work or their mode of operation. In the other infectious diseases the effects even of extremes of the above factors are but rarely definitely recognizable. One thing, and one thing only, is absolutely established, namely, that tuberculosis, pneumonia, and the other infectious diseases will develop under almost any circumstances if the dose of infection be large enough, virulent enough, or sufficiently repeated. Tuberculosis, pneumonia, and the other infectious diseases will not develop under any circumstances without such infection.

Hence it must be evident that the *sine qua non* of all infectious diseases are their respective agents, and that, since the chief sources (infective persons) of these are known, the most logical efforts are those which concentrate on the prevention of the dissemination of these agents from these sources.

This is correct, not only in theory, but in practice, and presents an infinitely simpler administrative problem than that presented by the older hypotheses,—not only in the minor infectious diseases, where these principles have been practically accepted by all, but even in tuberculosis itself.

Thus, if "general environment" be the great factor in tuberculosis, the two million people of Minnesota must have each his or her own individual environment brought up to and kept at some standard-level designed to maintain each individual in his or her own alleged "highest state of health."

If, however, the infectiveness of the disease be the great factor, only three thousand people (the actively infective cases) need this supervision, in Minnesota, and they need it, not for the improvement of their "general environment," but *merely to prevent them from infecting others.* This problem, even numerically, is but one seven-hundredth the magnitude of the other. Consider the utterly impracticable expense and difficulty of the State attempting to insure only the four quoted factors,—good food, proper temperatures, temperance, and repose,—to two million people (to say nothing of the other "factors of safety" called for by those who lay chief emphasis on control of environment, i. e., abolition of foul air, smoke, dust, damp cellars, bad smells, dirty back yards, etc.), and contrast with this the expense of State supervision of three thousand people *merely to the extent of confining their infective discharges to themselves.*

Further consider that the same official mechanism which could control the three thousand tuberculous could also handle with but slight expansion the infectious persons needing supervision for the prevention of all the other infectious diseases, except the venereal, as well as the infective tuberculous. Remember also that improvement of the "general environment," allowing that its effective achievement were conceivable, could not be expected to have any noteworthy effect on most of these other infectious diseases, even though it had some on tuberculosis.

Need any more be said to indicate the superiority of the new principles as practical business propositions, over the old? The latter would require the realization of the millenium and an ex-

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*The terms **contagious** and **infectious** were formerly carefully used and carefully distinguished. Modern writers, however, fail to find any useful or basic significance in "contagious" as contrasted with "infectious." Hektoen, in Osler's "Modern Medicine," discards "contagious" and "contagion" entirely.

In these articles "infectious" is used to mean "transmissible" or "communicable."

penditure of untold millions; the former could be put into operation in three months, with an expenditure of twenty-five cents per head of the population.

The stumbling-block is that the general public still believes the teachings of twenty years ago concerning environment. These teachings were a mixture of the "old-wives fables" of the pre-bacterial age, with the early incongruities and half-truths of the new "theory" of bacteriology.

Bacteriology is now an old-established science; but, despite the fact that it has changed public-health work even more than it has changed medicine or surgery,—and both of these it has completely revolutionized,—the public still clings to the belief that public health is a curious profession, absorbedly interested in cutting weeds in vacant lots ("to prevent epidemics"), in burying dead animals and suppressing noisome odors ("to prevent epidemics"); in inspecting plumbing and collecting garbage ("to prevent epidemics"). The "good" health-officer is he who keeps the streets clean and the back alleys neat, and who falls into a rapture over a newly whitewashed outhouse and into a rampage if a pile of old bones is found under the cellar steps. Yet those who know better let these ideas alone, or even acquiesce in them, "to save trouble." Then it is expected that the carefully uneducated, or miseducated, public opinion will demand up-to-date laws! Is it any wonder that the public insists on thinking, acting, and legislating to suit the theories of twenty years ago instead of the scientific knowledge of today?

Creeds are often misleading, incomplete, or fallacious; yet the temptation to formulate the new principles briefly is strong, because their intelligent presentation to the public is so vital. Such formulation is attempted here.

THE PRINCIPLES OF THE NEW PUBLIC HEALTH

a. *Sources of Infectious Diseases*

1. Infectious diseases are infectious because they are due to the growth in the body of minute animal or vegetable forms (germs), the transmissibility of these germs from body to body being the sole explanation why these diseases are "catching."

2. Wherever in the body the germs develop, they leave it chiefly in the discharges, or by routes of the discharges, of the nose and throat, bladder, or bowel, i. e., from the main orifices of the body.*

3. The discharges infect another person practically only when that person takes the discharges, in some form, into the mouth or nose, except in trachoma and the venereal diseases.**

4. Outside the body disease germs do not multiply in nature, except perhaps rarely, and very temporarily in milk, water, or similar fluids. In general, even typhoid bacilli disappear from water supplies within two weeks, without evident multiplication. If introduced into milk, most infectious-disease germs die out as the milk becomes acid, generally in a day or two. Infectious-disease germs are rarely found in garbage, and they quickly die out if deliberately added. Practical modern public health recognizes therefore that the bulk of most of the infectious diseases are derived directly, or almost directly, from infected persons, not much from infected things, except water, milk, food, and flies. The danger from the general environment of an infected person is therefore small. The *things* in his neighborhood need little consideration, except those very immediately about him and directly infected by his discharges, such as bedclothes, personal clothes, towels, eating utensils, and other material objects that may receive, and retain for a time, fresh moist discharges. If attention be efficiently directed to infected persons and their discharges, the general surroundings may be safely ignored, except in the rarest instances.

b. *Routes of Infectious Diseases*

5. The routes by which the discharges of the sick person pass to the well person are exactly those by which the same discharges pass from the well person to the well person in ordinary life; for nose and mouth discharges the route is through direct contact (as in kissing, etc.), the sputum, mouth-spray, and the hands; for bowel and bladder discharges, the hands chiefly, and for all discharges through things infected by them directly or through the hands, which then go to the mouth or touch things which go to the mouth; as food, water, milk, eating utensils, towels, pipes, etc., etc. Flies also furnish an effective route. Water supplies are peculiar, because bowel and bladder discharges *en masse,* in the form of sewage, often enter them directly, at times being deliberately poured into them from city sewers.

6. The relative importance of these various routes in the carriage of infection vary much.

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*This applies to all the ordinary infectious diseases in this state. Smallpox, chickenpox, leprosy, syphilis, and some forms of tuberculosis are probably transferable from skin lesions at times. Certain tropical diseases are transmitted by insects tapping the blood-stream, etc. Probably all infections can be conveyed directly by inoculation. But these paths are so rare as to be negligible in ordinary life here.)

**"Infection is transmitted from an orifice of the infector to an orifice of the infectee."

The amount and freshness of the discharges, the number and virulence of the germs they contain, the size and frequency of the dose, and the number of susceptible persons who are dosed, must always be considered. Almost all the ordinary infectious disease germs die out quickly on exposure to direct sunlight and fairly rapidly in diffuse sunlight. When mucus, feces, and urine are thoroughly dried on furniture, door-knobs, etc., they are not readily removed again without moisture and friction, and when so removed the disease germs in them are likely to be dead or greatly reduced in recuperative power because of the drying. Hence, as a rule, *things* succeed in conveying infection only rather directly from the infector to the infectee, and practically only during the limited period when the germs are still fresh and moist.

c. *Control of Infectious Diseases*

7. The new principles therefore place at the head of official public health activities, the search for and supervision of infected persons, and the control of the infected discharges, particularly their exclusion from food and drink. Prompt intelligent disinfection of all the excreta immediately after their discharge from the body, is the best weapon in the supervision of infected persons. Isolation of the infected person is the next best, and is more universally practicable, because immediate intelligent disinfection of discharges can rarely be secured outside of the very best hospitals for contagious disease. The search for and supervision of mild, early, convalescing, unrecognized, and concealed cases and carriers, as well as of frank cases, is necessarily an essential item in the scheme.

8. The modern public-health department requires experts, but not experts in municipal housekeeping, in street-cleaning, garbage-disposal, smoke-prevention, etc. Its experts are the vital statistician, the epidemiologist, the laboratory man, and the sanitary engineer, the latter dealing chiefly with the broad questions of water-supply and sewage-disposal.

SUMMARY

At present the State's recognized function is limited to prevention of disease and even so chiefly to the prevention of a *part* only of the *infectious* diseases. Modern public-health principles recognize that in the discovery and supervision of the infected person and of the routes of extension from that person the chief secrets of such prevention lie.

TUBAL PREGNANCY: REPORT OF TWO CASES*

By W. Harry Godfrey, M. D.

RUSSELL, N. D.

Three years ago I gave a paper before this Association on tubal pregnancy, with signs and symptoms. I now present a report of two cases of unusual interest. My only excuse for doing this, is the hope that these histories may be of benefit to some of the men when cases presenting similar symptoms present themselves.

Case 1.—Mrs. H., aged 28 years, was married three and a half years ago, and gave a history of having contracted venereal disease shortly after marriage. She had a miscarriage of a three-months' fetus two years previous to the present illness.

On October 28, 1910, the patient complained of severe pain in the lower abdomen. She had not menstruated since August 22, 1910. Examination was difficult on account of tenderness and the mass of adhesions from the old pelvic trouble. The uterus was much enlarged, and there was no hemorrhage of any kind. Antiphlogistine was applied to the abdomen, and a hypodermic of morphine, one-quarter grain, was given. She felt perfectly well the next day.

I did not see her again until November 5th, when she was suddenly taken ill, with a pain in the lower abdomen. The temperature and pulse were normal, and other symptoms were the same as at the first examination. The pain was relieved with morphine, as before. A tubal pregnancy was suspected. I saw her frequently until November 9th, the condition remaining about the same.

On November 9th she had two severe attacks of pain. She had been in bed for several days, but on this date on attempting to arise she collapsed. The pulse was 140, and the temperature normal. All the symptoms pointed to rupture having taken place. The usual remedies, including morphine, were given, and she rallied from the collapse. On November 10th, a small amount of very dark blood was passed per vagina. She was not operated upon until November 16th, on account of awaiting the arrival of some relatives. On this date her temperature was 100°, and her pulse 120. She passed dark blood in small quantities at intervals, and on the morning of the operation it was noted that her skin had assumed a slightly lemon hue.

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*Read at the 24th annual meeting of the North Dakota State Medical Association, Fargo, May 9 and 10, 1911.

Operation.—The abdomen was prepared the evening before with soap and water and ether, followed the next morning by tincture of iodine. Upon opening the abdomen, large quantities of free-blood clots were found, there being a large mass of clots on the right side. A fetal mass, two and three-quarters inches long and two inches wide, was found between the folds of the broad ligament. The fetus was removed, the extremities of the tube caught up with forceps, and the tube and ovary removed. There were a few slight adhesions of the left tube. The incision was closed without drainage, and the patient made a perfect recovery.

On December 19, 1910, the patient menstruated normally. About one week before January, 1911, she took a severe cold, which she thought was the cause of the cessation of the flow on this date. On Thursday, February 9th, she passed one clot of bright blood, and another on Monday, February 13th. She was examined on the latter date. The temperature was normal, and the pulse 80. She had no pain when lying still, but experienced slight pain on the left side of the abdomen when walking. Bimanual examination revealed the uterus enlarged to about two months' pregnancy. A painful mass was found lying to the left and a little behind the uterus. I was unable to feel this except with the tip of the index finger, but it was very painful to the touch. A blood-count, both at this time and at the time of her previous illness, showed a normal leucocytosis.

On February 21st it was decided to anesthetize her and prepare to operate if the diagnosis was confirmed. Under the anesthetic the mass at the left side could be plainly felt, and incision was made at the site of the old scar. A pregnant left tube was removed without rupture. The left ovary was not removed. The patient made an excellent recovery, as before.

Case 2.—Mrs. E., 34 years old. She had five children, the youngest 18 months old, the last menstruation was on December 7, 1910. She did not menstruate on January 7th. The patient was first seen on February 8th. She took ill suddenly two weeks previously, with pains all over the abdomen, which became localized on the left side. She also flowed "just a little," as she expressed it. This hemorrhage continued at infrequent intervals and in very small quantities during these two weeks. As far as I could learn, the color and odor of this blood were not abnormal. The pulse was 120, and the temperature had ranged from 99.5° to 102°. She had a "faded-leaf" appearance, and was thirsty, giving the impression of internal hemorrhage. The lower abdomen was very rigid and tender, and on vaginal examination a fullness could be felt on the left side. A diagnosis of ruptured tubal pregnancy was made. On account of the unsanitary conditions of the home, it was decided that it would be safer to remove her to a hospital. She was transported by sleigh fourteen miles, but bore the trip well. On Wednesday evening, February 8th, she was given the usual preparation for operation, including two ounces of castor oil and an enema. When the enema was returned, a quantity of old and recent blood was passed. The inference drawn from this was that the contents of the mass had ruptured into the bowel.

Operation.—A median incision was made, and the omentum was found to be adherent to the lower part of the anterior abdominal wall. This was pushed aside, and entrance was made into the left side of the pelvis. A large cavity was found here, filled with old and recent pus. The walls of the cavity and its contents were becoming gangrenous. Just after opening into this, gas issued through the mass from the rent in the rectum. The fetus was found beneath the folds of the broad ligament near the outer end of the tube. The vessels were ligated and the whole mass removed, with the ovary. A large drain was inserted through the pouch of Douglas. The incision was closed without a drain. The patient left the table with a pulse of 144. Hypodermoclysis was given, and she rallied. On the third day a fecal fistula developed at the lower angle of the wound, and fecal matter was passing from the vagina on the fourth day. Fecal matter and pus issued from the vaginal drain for three weeks, and the fecal fistula persisted for four weeks. The abdominal incision granulated well and shows no evidence of hernia. In spite of her desperate condition the woman slowly recovered, and is now quite well.

DISCUSSION

Dr. G. M. Williamson (Grand Forks): I would suggest that the President leave the chair and give us a history of those cases in which he and I were associated last winter. He remembers the history better than I do.

Dr. H. H. Healy (Grand Forks): I had no intention of reporting these cases, but they are very clear in my mind. One of these women was a multipara; I think she had had three normal previous pregnancies. I do not believe there was any history of abortion. She had passed her period about three weeks. She gave a history of a normal condition up to one morning when she was hanging a picture or doing something about the wall when she had a sudden pain in the abdomen; she said she felt a little faint for a few hours and had some pain and tenderness all that day. Then she had a slight "show" as she stated it for a few days, then for several days it disappeared and then came on a little again. About two weeks after she had this pain in the abdomen I was called to see her and found tenderness all over the abdomen, more particularly tender in the right iliac fossa. Her temperature and pulse were good, practically normal. She had no nausea as I remember, and her color seemed to be about as good as usual, although her usual condition was rather anemic. I made a careful bi-manual examination but was unable to discover anything, except I thought there was a little more rigidity, a little more fullness on the right side, thought possibly it might be appendiceal trouble in spite of this history. That was Sunday evening. The next morning the husband reported that she was feeling well and that I need not come again. I believe it was the following Tuesday morning, two days later, that I saw her again, the symptoms were more pronounced. She was then tender all over the abdomen, the pulse was not quite so good and I asked for a consultation. They decided they would have someone the next day. The next morning, however, I was notified that the pain had disappeared, and she felt so much better than there was no need of our coming. Half an hour later the husband telephoned and said his wife was worse and he would like to have me bring Dr. Williamson in consultation. We went over the case again and still were unable to make a positive diagnosis. We thought of possible hemorrhage, but the pulse was so good we concluded there could not be very much and decided to wait a while. Three or four hours later she had a sort of "sinking spell," as they called it, and I rushed over to the house to find her extremely anemic; the pulse had gone up to 130 or 140. We took her to the hospital, after some little misunderstanding between her husband and the ambulance driver causing a delay, and an operation was had that night about nine o'clock. She was in poor condition when we got her on the operating-table, and it was a question whether we should operate or let her die in peace. We found the abdomen full of blood, in fact, she had one of those thin abdomens in which the blood showed as fluid before an incision was made, looked like an extremely distended bladder. We pulled up the left ovary and tube and found nothing; the same on the right side. We had made an extremely large median incision in order to save time. On closer inspection we found what was probably the point of pregnancy. It was so closely attached to the gut itself that in putting a circular ligature around the tumor the gut was caught. This ligature had to be cut and the bleeding stopped by whip stitch. This woman made an uneventful recovery and is now perfectly well.

The other case was an ordinary tubal pregnancy. The woman was in a bad condition. We thought it inadvisable to take this woman to the hospital, and so operated on her, rather hastily, in her own room. She also made a good recovery, except that on account of the extreme shock we requested the nurse to put plenty of hot water packs around her. She placed a large hot water bottle between the woman's thighs, which burned her so badly that it was a couple of months before the scars healed up. It is needless to state that the burn was very annoying to all concerned.

Dr. J. E. Engtsad (Grand Forks): I saw an extratubal pregnancy, which was Dr. King's case. He had made a diagnosis of extra-uterine pregnancy, and when I arrived and saw the case I doubted his diagnosis. The woman was seven or eight months advanced in pregnancy. We delivered a quick child. I told Dr. King to take all the gauze we had. We had at least ten yards, but that was not enough, and I proceeded to tear up anything I could find. Everything was covered with blood, and the only thing to do was to shell out the placenta, but the hemorrhage was absolutely appalling. We packed in all the gauze we had, but that did not seem to stop the hemorrhage, and the only thing I could find was a large roller towel. I took that towel and put it into a kettle of boiling water (I remember I scalded my hands severely in doing so), wrung it out, and stuck it in the pelvis, and Dr. King was pulling out gauze and towel from that women for the next two weeks, but she made a complete recovery.

In the second case my assistant was a German woman, and she delivered the child. The poor woman was so excited she dropped the child on the floor from the effects of which it died.

My third case was with Dr. Reynolds. It happened to be an extra-tubal pregnancy. Both tubes were normal. I had had some experience in these severe hemorrhages, and I thought we had plenty of gauze, but we used up all the gauze we had, and we had to take some cheese-cloth from a window and use that.

My fourth case was the most interesting case I have had this year. It was something like Dr. Healy's case. That was a case where I took out the appendix and made an explorative examination further down and found a pregnancy in the tube.

I also this year had an interesting tubal pregnancy. It was in the case of a woman who was insane, and on consultation we decided to empty the uterus. I curetted and found nothing. I was taught when a boy that it was a crime to relieve or empty the uterus, but there was nothing in this uterus—it was empty. The woman came into the hands of a neurologist a month or two afterward, and he diagnosed pregnancy. I went to see that patient with the doctor, and it appears she had been pregnant three months. I dilated and curetted, and there was nothing there—there was nothing in the tubes; but I found a small mass on the right side of the uterus, which I thought might be a tubal pregnancy. I bent my curette at almost right angles and slipped it from the uterus into the tube and brought out a two months' fetus.

Dr. Blake Lancaster (Crosby): I am reminded of a couple of cases I had in my own practice that are in line with those reported by Dr. Godfrey. The first one I had was in the early days of practice in the Northwest. The woman was rather large and fleshy and had been in excellent health, until one day, all of a sudden, while doing a washing, she collapsed. When I arrived her pulse was imperceptible at the wrist, and she was extremely pale. I was not able to make a diagnosis by palpation, and I can very easily forgive anyone who cannot make a diagnosis of ectopic gestation. I happened to be in Boston when Dr. Scudder was operating for pyosalpinx, and he delivered a small fetus.

Dr. E. P. Quain (Bismarck): The exact point where fertilization of the ovum takes place, is not definitely known, but indications are that it happens in the tube, and not in the uterus. After the union of spermatozoön and ovum in the tube it sometimes happens that the fertilized ovum drops back into the abdomen. This is called tubal abortion. If considerable blood flows into the abdomen at the same time and prevents proper contact between ovum and peritoneum, the ovum will die and be absorbed. The patient will then recover her health, completely, or nearly so.

We had recently a case of unusual interest which serves to show that the spermatozoa are able to travel, not only the whole length of the tube, but even farther. A young woman became pregnant two months after her marriage. She had no unusual symptoms pointing to any abnormal condition until the time of labor, at about full term. Her labor resulted in nothing except the passage of a slight amount of blood and a small piece of tissue. She had severe pains for a few days only, after which she remained surprisingly comfortable for a period of two months. We saw her at this time, eleven months after the beginning of her pregnancy, and diagnosed an ectopic pregnancy which had gone to term, the dead fetus having been carried an additional two months.

At operation we found that the ovum—placenta, membranes, and the full-term fetus—was contained in a muscular cyst located between the uterus and the right tube and ovary. The tube opened into the cyst, but careful examination, macroscopic and microscopic, proved absolutely that no opening existed between the uterus and the cyst. It was a case of uterus bicornis with pregnancy in the rudimentary horn. The left ovary was normal and rather small. The right ovary contained a cyst which the microscope proved to be the corpus luteum.

The spermatozoön, therefore, had passed up through the left tube, crossed over the pelvic peritoneum, and fertilized a ripe ovum at the right ovary, and this had entered the right tube, from which it could not escape into the uterus. The process, termed *external transmigration of the semen*, was proven in this case.

The question of the time to operate in a case of tubal rupture with profuse hemorrhage, is an interesting and important one. There has been an opinion expressed by some writers, notably Dr. Zinke, of Cincinnati, that perhaps no woman ever dies from the first hemorrhage caused by tubal rupture; that severe fatal hemorrhage has been preceded by one or more attacks of internal hemorrhage; and that a careful history would lead, in most instances, to a correct conclusion as to whether the patient is seen at the primary or a secondary hemorrhage. In support of this argument, those who have seen a good many operations for tubal rupture, may remember finding the tumor sometimes composed of layers of coagulated blood, the last hemorrhage still perhaps uncoagulated, free, and surrounding the whole mass.

This has led to the suggestion that, if you are reasonably sure the patient is seen at the time of primary rupture, it is best not to operate until the patient is out of shock and the general condition improved. After a secondary hemorrhage the results at the hands of our best surgeons, so far as immediate mortality is concerned, seem to be about even. It is probably safer, generally speaking, to delay the operation a few hours, until the period of shock is over.

Some surgeons follow the practice of exploring the pelvis through the vagina before opening the abdomen in these cases. This, no doubt, is very helpful, but after obtaining the full and complete history upon which the successful diagnosis hinges, the exploration would probably be unnecessary in the majority of cases.

Dr. Harry P. Ritchie (St. Paul): The recital of cases of extra-uterine pregnancy is always very interesting. The symptoms are positive, yet in the series of cases I have seen, those that came to operation before the rupture are very few and far between. It seems to me that the great problem of extra-uterine pregnancy is early diagnosis; yet such diagnosis is not made often, because we do not get a chance and also because we misinterpret the symptoms. These symptoms are well known: First, there must be a change in the menstrual habit; second, there must be some flow from the uterus, because of the formation of the decidua, which is always present in extra-uterine pregnancy; and, third, there must be pain, which is caused by the distention of the Fallopian tubes. These are the three cardinal symptoms. They occur in every case, and in their findings a diagnosis should be made before rupture. It is not done for the reasons that the patients do not come for advice, and, if they come, it is very easy to misinterpret the symptoms.

Another important point in the diagnosis, so well emphasized by Prof. Ross, of Toronto, is a history of a past salpingitis, and there is so much evidence to be found that it seems an acceptable fact that extra-uterine pregnancy never takes place in a perfectly normal tube. The time of rupture is approximately a month to six weeks after the onset. Tubal abortion may take place, and there is no question that a recovery may occur without operation. I have operated upon tubal abortion which was almost calcified.

As regards the time of the operation, I quite agree with Dr. Quain that we need not fear the first hemorrhage, but if we can make a diagnosis before that hemorrhage occurs so much the better.

Dr. A. C. Morris (Fargo): I would like to report an interesting intra-uterine pregnancy case which I had. I do not know whether it is common or not, but I had never heard of it before. A young woman thirty years old, came to me the first of July and said that she had menstruated last the first of May. I diagnosed the condition as a two months' pregnancy. She returned home and came back to my office the first of September. Upon examination I found the uterus of the same size as before with no evidence of any progress of pregnancy. Not desiring to interfere in the matter at that time, I requested her to come back from month to month. She came on the first of October, November, and December. My impression was that there was a pregnancy, but there had been no enlargement since the first of July. I felt justified at this time in ascertaining what we had in the uterus, and introduced a sound. In forty-eight hours a fetus intact in the membranes with the placenta, developed to the extent of two months, was given off. The fetus was more or less calcified. The placenta was also somewhat calcified, but a part of it was normal. An interesting feature in connection with that case is that the uterus is able to retain a foreign body for such a length of time. This specimen was demonstrated before the Cass County Society.

Dr. E. A. Pray (Valley City): The case I want to speak to you about is one I did not intend to report, although it contains some interesting features, and for that reason it might be well to do so. It is the case of a woman who called upon me after she had been flowing irregularly for some three months, with a history which indicated ruptured tubal pregnancy at four weeks. She had no symptoms or conditions that would indicate obstruction of the bowel, and I satisfied myself that there was nothing intra-uterine, but I did satisfy myself that it was ectopic pregnancy, and I operated. I found a large organized mass which included about eight inches of the ileum, and the tube was entirely separated from the uterus close up to the horn.

The case is interesting from the fact that resection of intestine was required.

Dr. W. A. Gerrish (Jamestown): I desire to report the case of a very fleshy woman, who, two years previous to the time of calling me, had been operated upon after a second hemorrhage. She informed me that she was suffering from an ectopic pregnancy which had not ruptured,—a diagnosis in which I concurred. Operation, done on the following morning, confirmed the findings. I cannot recall a patient who ever made such a diagnosis herself.

Dr. L. W. Meckstroth (Wahpeton): I would like to ask whether in such a case of ectopic pregnancy as Dr. Engstad reports, it would not be better to leave the placenta in a few days, packing around the entire area with gauze, placing the gauze so that it can be easily taken out and the placenta with it. The placenta comes away and you will have no infection except sapremic infection. It occurred to me that that was the best method. I know if the placenta is left it comes away in a few days, but by what accepted method I do not know.

Dr. J. E. Engstad (Grand Forks): That is the recognized procedure nowadays. At the time the case I spoke of occurred there was no literature on the subject, and I simply acted as I thought was my duty, and that was to remove the placenta. At the present time I would leave the placenta—I would wall it off and leave the placenta.

Dr. Warren A. Dennis (St. Paul): I want to apologize for speaking a second time, but I would like to report one other case. Several years ago I had a case of extra-uterine pregnancy located at the outer end of the left tube, and we removed about two inches of the left tube. The woman made a satisfactory recovery, and in about three months I was called to see her again. She was in collapse, and it was evident she had had a hemorrhage. We hurried her to the hospital and opened her up. The abdomen was full of blood, and we found she had had a second pregnancy in the stump of that tube. She made a recovery from that operation. I have not found in literature a case of a second extra-uterine pregnancy in the same tube.

Dr. Godfrey (Essayist): When I got up to read this paper I felt like apologizing for bringing before you what seemed to be a rather time-worn subject. However, it is a subject that has been very interesting to me, and the reading of the paper has provoked a good deal of discussion at which I am gratified. I cannot speak with authority on the subject because I have only a small country practice, but it seems I had an unusually large percentage of these cases. I have had eight cases in the last three and one-half years, and I think that a large number for a small country practice.

So far as diagnosis is concerned, I may say I had the privilege of sitting at the feet of Dr. Ross, to whom Dr. Ritchie referred, and he laid great stress upon symptoms. In this first case cited, it was very difficult to form a judgment without an anesthetic, and as you could not get the mass between the two hands you had to go almost entirely by her history, and as I am familiar with the case I know it is of unusual interest. She had a pregnancy on the right side, and then she had another pregnancy on the left side.

Some speakers have referred to the fact that it is not necessary to operate at once. I do not like to speak with any authority on that point, but since I wrote a paper some two or three years ago I have paid some attention to the subject and have tried to read up on it everything I could get hold of, and I think the concensus of opinion is that the woman will not die of the first hemorrhage, but I believe she is then in good enough condition, even if she is not in very good condition, to stand the operation well, rather than to wait, and have complications set in.

In the second case right along this line you will remember I saw the woman two weeks after rupture had taken place, and the mass had become gangrenous, and it led me to believe it might be a good idea to operate earlier. The mass was rapidly becoming gangrenous, and a large abscess was forming there. This case also made me feel that, if

I had another one like that, I would not give her very much preparation, as far as her bowels were concerned. She was brought in from the country, fourteen miles, on a sleigh, and by giving her castor oil and an enema her bowels moved, and the first time a large amount of blood came out from the rupture in the wall of the sac into the rectum.

I did not intend to mention it, but I had another case of this kind which was evidently an ectopic pregnancy. This woman was taken to the hospital in the winter time a distance of twenty-two miles, and when they got there she felt so much better that she did not want an operation. At the end of a week her temperature and tenderness disappeared, and she seemed to be perfectly well; bleeding had stopped, and she felt so well her friends did not want me to operate on her at all. They took her home, and in two days she got up and started to walk across the floor, when she collapsed. They took her to the hospital at once, where we operated and the tube was removed. Four months afterward this woman came to my office and said she was pregnant. She was flowing, and upon examining her I found a fetus just at the mouth of the uterus, which I removed.

PROGRESS IN MEDICINE

Abstracts of medical reprints and articles on file in the library of the Department of Medicine, College of Medicine and Surgery, University of Minnesota.

UNDER THE CHARGE OF

DR. CHAS. LYMAN GREENE

These abstracts are read and discussed at the departmental meetings held monthly at the University Hospital.

[Ample space will be given to this Department in future issues of THE JOURNAL-LANCET.—THE EDITORS.]

RECENT ADVANCES IN THE ANATOMY AND PATHOLOGY OF THE HEART FROM A CLINICAL POINT OF VIEW

A. E. COHN, M. D.

American Journal of Medical Science, October, 1911

Dr. Cohn rightly says that we have come to regard the heart as a whole, and to lay more stress upon heart-muscle and less upon the automatically acting valves.

This means rather the dominance of muscle function than any diminished importance of valve defects. Phenomena formerly clinically unrecognized now furnish valuable diagnostic, prognostic and, possibly, therapeutic information.

As a result of the work of Englemann and Gaskell we now deal with difficulties of heart-muscle under the separate heads of irritability, contractility, rhythmicity, and conductivity, and we find that one patient may suffer from a defect of only one of these functions while another may suffer from more, either as the result of a valvular lesion or a purely functional disturbance. The clinical viewpoint has been improved, chiefly in relation to rhythmicity and conductivity.

Dr. Cohn points out the many deficiencies existing, even in our modern knowledge of the heart, and states that much remains to be done before proper clinical values are obtained. Gaskell and Englemann are credited with a great advance in formulating the doctrine that an initial impulse might be conducted to its appropriate location by means of the heart-muscle, and he emphasizes the great importance of the discovery of the function of the auriculoventricular bundle, by Kent and His, Jr., and its more accurate delimitation by Aschoff and Tawara, who traced it from its beginning in the lower interauricular septum and its ending at the venous base of the heart, in the papillary muscles.

Tawara's node, quite different in its anatomy from the rest of the heart-muscle, represents the beginning of this conduction system. This so-called A-V system consists of specialized cardiac fibers of distinctive fibrillar structure and in no sense represents embryonic tissue. It is thought by Hering, on the basis of some ingenious and convincing experiments, that the node of Tawara shows conduction. A node described by Keith and Flack, similar in structure to that of Tawara, has augmented our knowledge of rhythmicity. This node begins at the junction of the superior vena cava and the upper border of the right auricular appendix, extending a varying distance towards the sulcus terminalis. This sino-auricular node communicates in every direction with the auricular musculature, and many experiments tend to show that under normal conditions it acts as the pacemaker of the heart.

The work of the last seven years has, therefore, sufficed to put us in possession of the pacemaking sino-auricular node, and the stimulus-conducting auriculoventricular system, a coördinating service maintaining correlated contraction between the auricles and ventricles.

Sixty per cent of all cases of irregularity of the heart are represented by the pulsus irregularis perpetuus. The so-called nodal rhythm is explained, not by auricular dilatation and paralysis as originally stated by Mackenzie, but by the new doctrine of auricular fibrillation, which sufficed to explain the hitherto unexplainable accompanying auricular hypertrophy, the absent A-wave in the jugular pulse, and the perpetual irregularity. This auricular fibrillation appears to be due to lesions affecting the pacemaking function of the sino-auricular node, permitting or actually inducing the impotent fibrillary contractions of the auricle. This explanation may not be final or conclusive, but it is important and helpful.

Many lesions have been noted as affecting the A-V bundle, itself, and these may be disseminated, completely transverse, or incompletely transverse, and include tumors, metastases, infiltration, inflammations,—usually syphilitic,—and degenerations due to thrombotic or embolic, or endarteritic vascular disturbances.

The result of all complete lesions is complete auriculoventricular dissociation, which may or may not be associated with the Stokes-Adams syndrome. In the incomplete lesions are found large blood sinuses, old inflammations, and connective-tissue infiltration, and some of these, though incomplete, are associated with entire auriculoventricular dissociation, though in others it is only partial.

Whether the amount of injury alone is responsible for the varying degree of heart-block is not at present established. To account for cases in which all types of heart-block, from lengthened A-C intervals to complete dissociation, appear and shift from one form to another, the explanation is advanced that they are due to inflammatory processes which undergo periods of exacerbation and subsidence, tending ultimately to destroy the bundle. It cannot be denied that cases of heart-block occur which have existed for years, but lack any lesion adequate to explain the clinical findings.

The electrocardiograph has enabled us to distinguish cases in which one or other of the ventricular branches of the A-V system has been cut off from the main stem. The clinical findings in such cases are vague, though distinct.

The explanation of ventricular extra systoles is yet to be found, though it is probable that chronic and acute interstitial myocarditis (cardiosclerosis) may be responsible. No definite correlation between abnormal structure and abnormal function has, however, as yet been definitely established.

The writer closes with the statement that the use of all the complicated instruments at present devised will prove exceedingly barren in results unless these be interpreted from the standpoint of anatomy and physiology. C. L. Greene.

THE DIAGNOSTIC VALUE OF MITOTIC FIGURES IN THE CELLS OF SEROUS EXUDATES

L. F. Warren, M. D.

Archives of Internal Medicine, Nov., 1911

The author reports three cases. In one of them the presence of many mitotic figures rendered the diagnosis of malignancy almost certain. In another their appearance in small numbers strengthened a similar diagnosis. And in the third they changed a probable diagnosis of sepsis to one of malignancy.

The cases are described in detail and are accompanied by excellent photographs of the tumor cells, showing various stages of mitotic division.

The first case was one of lymphosarcoma (autopsy) involving chiefly the omentum with nodules scattered through the peritoneum, abdominal viscera, and retroperitoneal glands. The diaphragm, pleura, right lung, and bronchial glands were also involved. The origin of the tumor remained in doubt. In the fluid obtained from the abdomen four days before death tumor cells in both resting and division stages were seen in every field of prepared films.

The second case was one of colloid carcinoma (autopsy), involving the omentum with nodules in the peritoneum, pleura, and liver. In the ascitic fluid removed three weeks before death, a small number of mitotic figures were found in the stained smears.

In the third case no autopsy was obtained, but in aspirated fluid from the right chest numerous large atypical mononuclear cells, many showing mitoses of the nuclei, were present. These findings, together with the clinical picture and the history of an ovarian tumor (papilliferous cystadenoma), removed at operation about one year before, made the diagnosis of malignant disease of the pleural cavity most probable.

In an interesting review of the literature the writer brings out the important point that in the majority of the exudates associated with malignant disease, no division figures are seen. Numerous effusions complicating malignant disease have been reported in which division figures were not described.

The author was able to find reports of only seven cases, previous to his own, in which exudates due to malignant disease showed free cells undergoing mitotic division. In conditions other than malignancy the occurrence of mitotic figures in the cells of exudates is extremely rare. Only two such instances were encountered in the literature—one a probable infectious pleurisy following removal of a diseased appendix (Dock); the other a patient reported by Ross in whom the clinical history suggested tuberculosis, and who was in a satisfactory condition eleven months after tapping.

The cases showing numerous, actively-dividing cells, free in the fluid, have occurred most frequently where the growth was a sarcoma. This, Beneke assumes, is due to lack of stroma allowing the cells to appear free in the fluid.

The author concludes that very many cells undergoing mitotic division in serous exudates are almost diagnostic of malignant disease, whereas a small number is suggestive, but of no certain value in diagnosis. E. T. F. Richards.

THE EOSINOPHILIA OF BRONCHIAL ASTHMA WITH REPORT OF CASE SHOWING EXTREME BLOOD CHANGES

W. W. Herrick, M. D.

Journal of the A. M. A., Vol. LVII, pp. 1836-37

The report covers a case of bronchial asthma where the percentage of eosinophiles exceeds any case reported in the more recent literature. The highest counts on record are those of Coler and Billings with 25 per cent and 53.6 per cent, respectively.

The case of the writer varies in eosinophiles from 7 per cent to 72.5 per cent, the lower figure being the count after treatment with potassium iodide, in varying doses for intervals of several weeks during four months.

In the examination no cause was found for the asthmatic attacks. The suggestion of a similarity to the picture of trichiniasis is made, experimental work on this problem being in progress.

The author repeats the recommendation of the use of potassium iodide in all cases of true asthma. F. A. Olson.

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THE WASSERMANN REACTION AND ITS UNCERTAINTY

The reliability of the Wassermann reaction is a matter of considerable concern to medical men. That it is corroborative of lues when a history or other findings of the disease is present, is unquestioned, but that it may be found in non-specific disease is at times disconcerting and misleading.

Dr. Leo Newmark, of San Francisco, reports two cases of non-specific tumor of the central nervous system (*Jour. of the A. M. A.*), both of which gave a positive Wassermann.

An editorial in the *Jour. of the A. M. A.* explains how this error may come about.

Neoplasms in other organs and tuberculosis in which secondary infections occur, may show a Wassermann reaction.

It has been shown that "extracts prepared from syphilitic livers may contain bacterial antigens, as well as syphilitic, and the presence of the corresponding bacterial antibodies in the patient's serum may produce a positive reaction not due to syphilis."

The Wassermann reaction, with the usual technic, employs an alcoholic extract, but in diseases of the central nervous system a watery extract is essential.

"There is no doubt that, besides the specific antigen—antibody mixture—a high amount of lipoids (cholesterin, lecithin, sahidin), contained in antigen and in serum, may suffice to absorb the total quantity of complement."

Lipoids are insoluble in water, but soluble in alcohol, and the antigenetic substances are not soluble in alcohol. The phosphatids are a part of the composition of the nervous system and in disseminated sclerosis or tumor, leprosy or scarlet fever, an impoverishment of the lipoids is brought about in all the organs, especially in the bone-marrow, which, secondarily, may lead to a lipoid accumulation in the blood-serum.

"The inhibition of hemolysis in non-specific affections is, almost always, incomplete."

These theories and the necessity of a skilled study of the Wassermann reaction in every case where it is employed, may cause an error. It must not be inferred that, when the reaction is absent, syphilis does not exist.

To arrive at a definite conclusion the Wassermann test must be tried out in every way, and, if possible, other tests must be employed. At best the reaction is frequently confusing, and to the general practitioner it is still a closed book unless he employs laboratory aids in whom he has the utmost confidence.

The symposium on syphilis in this issue is very instructive.

HOSPITAL AND DISPENSARY SIDE-LINES

"Has the hospital and dispensary fulfilled its obligations after it has cured the sick, or has it other functions to perform?" This is a very pertinent question asked by Dr. M. T. Schoenberg in the *New York Medical Journal* of January 20th. It is a well-established fact that the masses of laymen are in great ignorance concerning the care of themselves and the suggestions of the many health laws that have been passed for their protection. The same ignorance may prevail among others than those directly interested in the one topic of study or the one occupation in life that has been thrust upon them or that they have acquired through compulsion. The number of laborers who study general and wider problems is probably limited. A few perhaps are striving to improve their social and industrial status, but they are working against great odds.

Cabot of Boston inaugurated a social-service bureau in connection with hospital and dispensary work that considers the occupation capabilities of the convalescent. He extends this service further by studying the domestic side of the individual,—his surroundings, associates, and such other facts as may bear upon his future welfare. The need of personal instruction is so necessary among the sick poor that the task seems almost impossible, yet it is imperative to prevent the extension or prolongation of preventable-disease states, needless poverty, and gross ignorance. "Is Professor Osler wrong when he thinks that in medical matters the ordinary citizen of today has not one whit more sense than the old Roman?" The problem of instruction among the lower classes of simple laws of health is a difficult one.

The hasty reformer who goes out to give half-digested advice soon becomes the laughing-stock of the poor. They accept his offering, provided it is substantial and useful, but when he preaches reformation that is beyond the reach of most indigents it is not accepted. The ultimate result is that, when the man who knows attempts to aid by suggestions, he is classed with the man who does not know. If hospital physicians and dispensary men would give a little more time to their convalescents and write a few simple rules for guidance when their patient returns to his old surroundings it would pave the way for the social-service expert. The latter should be trained for such work, just as visiting nurses are trained for the work they follow.

There has already been a beginning looking toward the solution of this very question.

Rules of personal hygiene, traveling exhibits, lectures on popular medical topics, printed bulletins, and syndicated articles for the lay press, are laying a substantial foundation upon which a definite structure may be built. Instead of leaving this business to church workers, druggists, and patent medicine men, the physician must take the initiative. In such matters the average medical man takes a less serious view than he should. It may take a little more time and more effort to explain elementary principles than is customary, but it pays in the end by securing better co-operation between the very individuals that are constantly in contact with these problems.

The work in preventive medicine is too great to be overlooked, and the fundamentals lie with the medical and trained instructor.

WHY JOIN A MEDICAL SOCIETY?

In our department of correspondence we publish a letter worthy of the most careful consideration. Our correspondent is a man of high attainments and high standing in the profession, and he no doubt voices views common to many medical men; and yet we think he is entirely mistaken in his views and is forgetful of his own obligations to the profession. The evils of which he complains are bad enough, but not so bad as to be defined by sweeping general terms. We may not say how they are to be corrected. If it is the duty of the officers of medical societies, as our correspondent clearly implies, why did not he become a leader in the holy crusade against such men while a councilor in and the president of his state association?

We do not believe these evils can be put down in this way unless practically every reputable physician in a state becomes a member of the state association, and membership in the association becomes essential to success in gaining and holding practice, as should be the case. Under such conditions, the men who have the professional temperament and who are seeking high medical standards could win over the unstable, the disgruntled, and the dishonest.

Our correspondent asks if the reading of medical journals and an annual course of post-graduate work would not give as good results as attendance upon the societies.

We venture the assertion that if a state can be found where 50 per cent of the medical men are members of the societies and 50 per cent are not members, ten times as many of the former class as of the latter read medical journals and do post-graduate work, and that the grade of reading and work is ten times higher in the former class than in the latter.

We may be accused of dealing in general statements and of guess-work as to percentages, but we positively know that we are not wide of the mark. The men who love their profession and would honor it, seek the association of men of like minds, and nowhere else can they be found than in societies. These men also love their fellow men, overlook their faults, and seek to raise them to higher levels. The only positive instrument for such work is association, and coming together in societies furnishes the right kind of association. Moreover, the obligations of the profession to the public can be paid in no other way than through organized effort, and this means local societies and state associations.

In our opinion the physician who is not a member of a medical society falls sadly short of his obligations to his fellow men and equally short of his opportunities to develop along the best lines.

PROGRESS IN MEDICINE—OUR NEW DEPARTMENT

We establish in this issue a department of "abstracts" of medical articles which will be of distinct value and practical use to our readers. No attempt will be made to cover the entire field of current medical publications, but rather to present certain of those articles of special interest and merit which any practitioner is glad to read.

In the immense mass of medical literature now available one finds all classes of papers, some too technical to make any general appeal, others unworthy of notice, yet others of the greatest interest and importance.

We are glad of the opportunity presented us of securing the "abstract" material taken up from month to month at the meetings of the Department of Medicine in the College of Medicine and Surgery of our State University, inasmuch as we know that this represents articles deemed worthy of both reading and discussion at the hands of busy clinicians.

The clinical departments of our University Hospital are admirably, efficiently, and almost uniquely organized, and the Department of Medicine holds monthly meetings at the Hospital, on which occasions cases of special interest or obscurity are presented and fully discussed by the teachers composing that Department, and by representatives of affiliated departments.

Research problems are then considered and the remainder of the evening is devoted to recent medical literature.

The files of the Departmental library are being constantly enriched by valuable reprints representing articles selected and obtained by the head of the Department as being of special interest and value. A few of these in turn are assigned to and abstracted by members of the Department, and subsequently subjected to criticism and discussion.

It is these abstracts which appear in this issue under the heading, "Progress in Medicine," and Dr. Greene, the Chief of the Department, has cordially assented to their use and agreed to assume charge of the department.

Wherever the articles clearly demand special comment, either critical or explanatory, as developed by the discussion at the meetings, this will be indicated either by being enclosed in brackets or by comments at the end of the abstract.

Certain papers of too technical a nature to interest the general reader will be omitted, and, although no serious attempt will be made by the abstractors, in all cases, either to endorse or refute statements of a novel, bizarre, or ultraradical nature, nevertheless, the articles have the merit of having been considered worthy of the earnest attention of a large body of trained scientific men.

We know of no department of this kind operating under quite so favorable a mechanism, and believe it to be of extraordinary value to the profession.

CORRESPONDENCE

WHY JOIN A MEDICAL SOCIETY?

January 28, 1912.

To the Editors:

I was very much interested in your editorial of Jan. 15th, entitled "Why Join a Medical Society?" but I hardly think that you have struck the real reason why there is such a large percentage of the physicians who are not members of any medical society. True, some cannot gain admittance, but the number is so small that they need hardly be taken into consideration, nor is it "sheer indifference to medical progress;" rather, is it sheer indifference to the manner in which the code of ethics is practiced by a great many of the so-called ethical men.

During my term of several years as councilor for a district medical society and my term as president of the state association, I came in contact with a great many of the physicians of this state, who were not members of the societies and whom no inducements could get to join the societies. Almost invariably the reason they gave for not joining was the fact that from their experience the code of ethics was a thing of the past and was ignored not only by a big percentage of the profession, but by a big percentage of those men who should be leaders, and if there is such a thing as ethics in the profession they were the ones who should have practiced it, as they were officers of the societies and the big men of the profession, the men with the big reputations who are considered the leaders in every way.

What benefit is a man to get from a medical society under those conditions? Things such as happen every day are disgusting to a man who would like to be ethical, and what incentive is there when a great many times men of that stamp are made officers of the medical societies or officers of the state board of examiners. Can a man not gain as much by reading the good medical journals and by taking a month's post-graduate work every year at some of the medical centers?

I think this is a big question, and it is either be ethical or be a grafter; and the ones who try to be ethical seem to be the ones who lose out when other members of the medical societies will do most anything to gain patients.

—A Subscriber.

Note.—This communication is answered in our editorial columns.—The Editors.

MISCELLANY

IN MEMORIAM

Memorial of Dr. Max P. Vander Horck

The Faculty of the College of Medicine and Surgery of the University of Minnesota records with deep regret the death of another of its initial organizers, Dr. Max P. Vander Horck.

Since the establishment of the School, he has filled, with unfailing interest and devotion, a chair in this Faculty. To his associates he has always been a loyal friend, to his students an enthusiastic teacher and counsellor. To the cause of medical education he has contributed his time and energy year by year. He cherished a great faith in the future of medicine in this University, and he justified his faith by his daily work, alike in teaching and in practice. He was one of a little group of earnest men in the Northwest who, in the days when scientific medicine and modern medical education were alike in the making, was ready to give much of himself to the blazing out of broader paths for his followers to a higher educational goal than he and his fellows had won.

In his passing, the Faculty realizes a sense of loss which is peculiarly individual, the loss of a man who, in the comradeship of men, was personally sweet, generous, and companionable.

It desires to express to Dr. Vander Horck's family its sympathy in their yet more personal grief and to take this opportunity to mark its appreciation of the substantial interest which its members of two generations have taken in the progress of medical teaching.

Memorial of Dr. Judd Goodrich

In the death of Judd Goodrich the Faculty of the College of Medicine and Surgery of the University of Minnesota loses, at once, a son and a brother, a medical scientist of its own professional parentage, and a rare man among men in the brotherhood of the profession it serves.

It records its sorrow over this loss of an old pupil who remained always a student of medicine; of a colleague who entered its councils in his youth, who lent to them an early maturity of judgment and skill, and who manifested a devotion to the interests of medical education which has done much toward placing Minnesota in the forefront of medical schools.

As a physician among his patients he followed in the footsteps of Him who went about doing good, and many are they who miss his quiet, kindly, and generous ministrations. Among his professional associates, he was companionable, frank and friendly, fruitful in his advice and loyal in his relations.

He was successful in practice far beyond the rating of the financial reward that he received, and he was undoubtedly destined, had he lived, to attain the ultimate of professional eminence.

Words do not measure the worth of such a man in his own world nor do they fitly gauge the world's loss in his going, a loss which his family, his friends, and his fellows alike share.

The Faculty desires to offer its sympathy to Dr. Goodrich's relatives in their bereavement and orders this memorial placed upon its minutes.

REPORTS OF SOCIETIES

THE SOUTHWESTERN SOCIETY

The 24th annual meeting of the Society was held in Worthington on January 11th. In spite of the very severe weather and delay in train-service twenty-two members were present. Officers for this year were elected as follows: President, Dr. C. P. Dolan; vice-president, Dr. L. Sogge; secretary-treasurer, Dr. Emil King; delegate, Dr. Emil King; alternate, Dr. F. R. Weiser.

The following papers were read and fully discussed: "Electricity in Gynecology," by the President of the Society, Dr. A. B. Williams, Wilmont; "Bone-Formation in Abdominal Cicatrix Following Laparotomy," Dr. C. L. Sherman, of

Luverne; "A Few Unpleasant Features in the Practice of Medicine," Dr. A. E. Spalding, of Luverne; "Effects of Continued Common Colds in Relation to the Upper Air-Passages," Dr. Victor I. Miller, of Mankato; "Intestinal Obstruction, With Report of Unusual Cases," Drs. Wiedow and Mork, of Worthington; "Gastric Hemorrhage: Report of an Unusual Case," Dr. J. T. Smallwood, of Worthington; "Ectopic Pregnancy, With Report of Cases," Dr. L. Sogge, of Windom; "Hydatiform Mole, With Report of Cases," Dr. Thomas Lowe, of Pipestone.

Dr. H. W. Hill, Epidemiologist of the State Board of Health, was present and gave a popular lecture on the methods by which epidemic diseases are spread, but, owing to the bad weather and perhaps to the usual lack of attention on the part of the laity, the attendance by the latter was small.

A banquet given by the local profession closed one of the most interesting meetings held by this Society.

Emil King, M. D., Secretary.

THE GOODHUE COUNTY SOCIETY

The Society met at Red Wing on Jan. 2d. The following officers were elected: President, Dr. J. V. Anderson, Red Wing; vice-president, Dr. H. L. McKinstry, Red Wing; secretary and treasurer, Dr. M. W. Smith, Red Wing.

Dr. Walter J. Marcley, of Minneapolis, read a paper on "Tuberculin and Tuberculin-Therapy."

M. W. Smith, M. D., Secretary.

THE PARK REGION DISTRICT AND COUNTY SOCIETY

The annual meeting of the Society was held at Fergus Falls on Jan. 10th, and the following officers were elected: President, Dr. A. D. Haskell, Alexandria; first vice-president, Dr. A. J. Gilkinson, Osakis; secretary-treasurer, Dr. A. M. Randall, Ashby; delegate, Dr. A. J. Gilkinson, Osakis; alternate, Dr. A. M. Randall, Ashby.

Owing to inadequate train-service there was a light attendance at this meeting, and several whose names appeared on the program were unable to attend.

Dr. C. W. Meckstroth, of Brandon, read a paper on "Placenta Previa," and Dr. Gilkinson reported "Some Unusual Cases." Dr. Sherping, of Fergus Falls, led the discussion.

The Society went on record as commending the action of the Commissioners of Ottertail County in establishing a tuberculosis sanitarium.

A. M. Randall, M. D., Secretary.

ABERDEEN (S. D.) DISTRICT SOCIETY

The Society held its annual meeting at Aberdeen on January 23d.

Dr. C. N. Spratt, of Minneapolis, read a paper on "Some Eye and Ear Diseases Due to Nose and Throat Conditions." The paper was of great interest, both to specialists and general practitioners, and was highly appreciated. Dr. R. D. Alway, of Aberdeen, presented a paper on "Internal Diseases of the Eye." Dr. Frank Miller, of Aberdeen, reported an interesting case of eye disease which recently came under his care. Dr. C. E. Ruth, of Des Moines, Iowa, gave an interesting talk on his practice in Porto Rico for four years, giving an account of conditions under which the medical man works in that country.

Officers for 1912 were elected as follows: President, Dr. J. L. Harris, Webster; vice-president, Dr. A. A. Sorenson, Aberdeen; secretary, Dr. J. F. Adams, Aberdeen; treasurer, Dr. J. E. Bruner, Frederick; delegate, Dr. R. L. Murdy, Aberdeen; alternate, Dr. J. D. Jones, Groton.

A banquet was given in the evening, and a delightful social time was spent by all in attendance.

J. F. Adams, M. D., Secretary.

MOWER COUNTY SOCIETY

The quarterly meeting of the Society was held on Jan. 17th at Austin.

Papers were read by Dr. E. V. Smith, Adams; Drs. P. T. Torkelson, and W. E. Cobb, Lyle; Drs. C. C. Leck and C. F. Lewis, Austin.

The discussion of the papers was quite full, and the meeting was one of interest and value.

HENNEPIN COUNTY SOCIETY

The annual meeting of the Society was held on January 8th, with seventy-five members present.

The various committees made reports, but most of the same is of interest only to the local society. The Library Committee reported the contents of the library as follows: Number of books, 4,438; unbound reports and transactions, 500; reprints, 1,300; unbound journals, 9,000; journals subscribed for, 32; journals donated, 90; number of readers using the library, 800.

Resolutions on the death of Dr. Max Vander Horck were passed.

Drs. Edwin D. Brown and O. W. Young were elected members.

Officers were elected as follows: President, Dr. C. H. Bradley; vice-president, Dr. J. H. Rishmiller; secretary-treasurer, Dr. E. J. Huenekens; librarian, Dr. J. P. Sedgwick; executive committee, Drs. A. S. Hamilton, and J. W. Little; delegates, Drs. Emil D. Geist, Wm. W. Chowning, Leo M. Crafts, T. F. Quinby.

SPECIAL MEETING

A special meeting of the Society was held on Jan. 29th, to listen to an address by Dr. J. N. Hurty, secretary of the Indiana State Board of Health on "Practical Eugenics." A number of the city's leading citizens were present, and the address was greatly enjoyed by them.

The Society passed a resolution favoring the Board of Education's plan for an open-air school for tuberculous children.

E. J. HUENEKENS, M. D., Secretary.

NEWS ITEMS

The Russell City (N. D.) Hospital has been reopened.

Dr. J. T. Holcomb has moved from Center City to Dunnell.

Albert Lea's new hospital is now complete and ready for occupancy.

Dr. P. G. Reedy has moved from Webster, S. D., to McLaughlin, S. D.

Dr. A. G. Maercklin has moved from Rhame, N. D., to Valley City, N. D.

Dr. P. A. Hilbert, of Melrose, is taking a trip through the South and to Cuba.

Drs. A. J. Braden and J. J. Eklund, of Duluth, are traveling in the South.

Dr. G. A. Morley, of Crookston, is doing post-graduate work in New York City.

Dr. Walter N. Lee has moved from Minneapolis to Hopkins, a suburb of the city.

Dr. D. V. Moore, of Yankton, S. D., will spend the next four months in Europe in post-graduate work.

Dr. Paul M. Kellogg, of Tolna, N. D., was married last month to Miss Lelah Gage, of Fargo, N. D.

Dr. Henry J. O'Brien, of St. Paul, was married last month to Miss Caroline Mary Beaumont, also of St. Paul.

Dr. W. L. Barbour, of Marmarth, N. D., was married last month to Miss Barbara DeLanger, of Parker, S. D.

Dr. Melvin S. Henderson, of the Mayo staff, Rochester, was married on Feb. 10th to Miss Mabel Christianson, of Marshfield, Wis.

Dr. A. W. Miller, formerly coroner of St. Paul, has returned to that city from Denver, where he has been practicing for a couple of years.

A New York capitalist will probably erect in Minneapolis another office building for physicians. The Hennepin County Society endorsed the plan.

Only six physicians took the January examination for certificates to practice in South Dakota. This is the smallest number at an examination in the history of the State.

Dr. William Treacy, of Helena, Montana, died last month in Honolulu. Dr. Treacy located in Helena in 1886, and at once gained prominence in his work. He was 56 years of age.

Dr. J. T. Dunn, who has practiced many years in Wykoff, has moved to Albert Lea, and formed a partnership with Dr. W. L. Palmer. The firm name will be Drs. Palmer & Dunn.

Dr. O. T. Batcheller, who has practiced in Brainerd over a dozen years, will locate in Spokane. He will first take a special course in eye, ear, nose, and throat work in New York City.

The medical societies of the Northwest are giving an unusual amount of attention to commission taking. Possibly the "psychological moment" has come for putting down this practice.

The president of the Boston Institute of Technology asserted, in a recent speech made in Minneapolis, that the "Tech" cannot supply the demand for experts to take charge of city health matters.

Dr. Woods Hutchinson's popular lectures on health subjects, given before civic organizations, are exceedingly interesting and equally instructive. He visited a number of Minnesota cities last month.

Now that Dr. John B. Murphy, of Chicago, has been sued for $50,000 for malpractice in an operation on a man's foot, the surgeon who is sued for $5,000 or so may consider himself on the way to fame.

Dr. George I. Wiltrout, who is, we believe, the son of Dr. Irving Wiltrout, the founder of the Sanatorium at Hudson, Wis., has become the resident physician of the institution, under Dr. Darling, the superintendent.

Dr. A. A. McCrimmon, of Rainy River, Ontario, died last month of pneumonia. Dr. McCrimmon was a graduate of McGill, and located at Rainy River in 1900, and was well known, both in Ontario and Minnesota.

Dr. Boyd Williams, of Minneapolis, who was refused a certificate by the State Board of Medical Examiners, claims that the refusal was based on the fact that he advertised. It was based on the misleading statements in his advertisements.

The South Dakota State Association has arranged with the Speakers' Bureau of the A. M. A. Council for a series of six or seven popular lectures on health matters. They will be given in different cities of the state within the next sixty days.

Dr. Henry W. Cook, of Minneapolis, read a paper before the Interurban Academy of Medicine of Duluth and Superior last month. Dr. Cook advocated a closer attention to health on the part of the individual and frequent medical examinations.

Dr. J. A. McCuen has been elected mayor of Duluth, and we predict that he will be able to accomplish much in medical lines for the city. The Duluth papers are ably conducted and have long given much attention to the health of the people.

The Midway General Hospital, in charge of Dr. Frederick E. Leavitt, of St. Paul, was granted a permit by the St. Paul Council without hesitancy, although other requests from proposed hospitals have been denied. The Midway Hospital is open to all physicians, and it has many attractive features which bespeak success for it.

Dr. W. J. Marcley, now of Minneapolis, but formerly head of the State Sanatorium, has been selected by the Board of Charities and Correction to take charge of the medical work at Hopewell Hospital, the city's new hospital for tuberculous patients. With the new building, the Hospital will be able to care for 120 patients.

Mrs. Hazzard, the woman who conducted a "starvation sanitarium" at Seattle, has been convicted of manslaughter for starving to death a patient taking her "cure." It is said several patients have died under the treatment. A few such sentences will teach some people that medical fads are dangerous methods of obtaining easy money.

South Dakota has raised its requirements for medical licensure. The amount of preliminary education has been increased, and oral and practical laboratory work is required in the examination of candidates. The state has had no reciprocal relations with other states until recently, when such relations were established with North Dakota and Nebraska.

PHYSICIANS LICENSED AT THE JANUARY (1912) EXAMINATION TO PRACTICE IN SOUTH DAKOTA

Barrick, Roy G.	Hahnemann, Philadelphia
Brandon, Palmer E.	Northwestern
Eirley, Clara S.	Women's Col., Baltimore
Herzberg, Mortimer	U. of Pennsylvania
Ralston, James H.	Jefferson
Snyder, John A.	Drake

PRACTICE FOR SALE

An unopposed $4,000 practice in a town of 600 in southern Minnesota. Nearest competition, 9 miles. Best farming community in the State. Am going to specialize. Possession given May 1st. Price, $600; $300 cash, and note for balance. Address S. A., care of this office.

PRACTICE FOR SALE

Good man wanted to take unopposed practice bringing $3,500 to $4,000, in town of 500 in central Minnesota; established nine years. Will sell if wanted. No cash needed if references are good. Going to take post-graduate work. Address H. M., care of this office.

PART OF MINNEAPOLIS OFFICE FOR RENT

One-half of my suite of furnished offices (four rooms) in Reid Corner (9th and Nicollet) is offered for rent. Address Dr. W. J. Marcley, Reid Corner, Minneapolis.

STOLEN BOOKS

During the past sixteen months the following books were taken from the office of a Minnesota physician: Hare's "System of Practical Therapeutics," Vols. I and II, 1910; "Boston and Ander's Diagnosis," 1911; Bergey's "Principles of Hygiene," 3d edition, 1909; Hughes' "Practice of Medicine," 10th edition, 1911. Any physician who may have purchased any of these books, except from a reliable dealer, will confer a favor by notifying this office. Address B. A., care of this office.

AUTOMOBILE WANTED

A five-passenger 1910 or 1911 model, medium-priced car. Have choice 120-acre prairie tract or 160 acres of improved land in Red River valley to exchange. Describe car in first letter. Address R. H., care of this office.

FOR SALE

One instrument-cabinet. Quarter-sawed oak with six glass shelves with ground and polished edges. Shelves 8½x36 inches. Glass doors closely fitting. Specially made. Bottom drawer. Size of cabinet, 10½ inches deep, 38 inches wide, 54 inches high.

One bacteriological incubator. Copper, asbestos covered, enameled, water-jacket, with thermo-regulator and safety-lamp complete. Inside dimensions 9x9x12 inches, in good condition.

Also one Zentmayer Photomicrographic camera with stand. Inquire of Dr. J. L. Rothrock, 514 Lowry Building, St. Paul.

Doctor: If you want practical postgraduate work during fine season in the delightful city, write for particulars. New Orleans Polyclinic, P. O. Box 797. Postgraduate Medical Dept., Tulane University of La.

Grape-Nuts

For

BABIES

In many cases of infantile mal-nutrition, where the usual list of foods known to the physician and nurse has proved wanting, Grape-Nuts, prepared as shown below, has produced most happy results.

Made of wheat and barley, this well-known food contains all the food elements of these cereals, including the "vital Phosphates" (grown in the grain) necessary to the elaboration of the body cells.

The food is also sterilized by long baking and absolutely sanitary handling throughout its manufacture.

TO PREPARE GRAPE-NUTS FOR BABIES

Take one to three teaspoonfuls Grape-Nuts, according to age of child, and add to half a teacup of boiling (sterilized) water.

Let stand five or six minutes, stirring occasionally. Then pour off the liquid and add a like amount of warm top milk, and sweeten with granulated sugar.

The elements in the cereal not only "modify" the milk but add to the nutrition of the child.

This has been known to remain on infants' stomachs when all other food preparations were rejected.

The "Clinical Record" for the Physician's bedside use will be sent, prepaid to any physician, or nurse who has not already received one. Also a box of samples of Postum, Grape-Nuts and Post Toasties.

Postum Cereal Co., Ltd., Battle Creek, Mich., U. S. A.

PUBLISHER'S DEPARTMENT

CYSTOGEN-APERIENT (GRANULAR EFFERVESCENT SALT)

This product is an excellent example of that type of worthy proprietary medicines which cannot be extemporaneously compounded and can be manufactured only by skilled chemists with the full facilities of a large laboratory. The formula has always been open to the profession and the advertising has been free from the objections so often urged against proprietary medicines. It is not presented as a saline purgative, but as a rational therapeutic aid wherever treatment is based on elimination of waste products. The formula shows that each teaspoonful contains:

Cystogen ($C_6H_{12}N_4$) ....gr. v.
Sod. Phosphate ....gr. xxx.
Sod. Tartrate ....gr. xxv.

Cystogen-Aperient, it will be seen from the above, combines the laxative and tonic properties of sodium phosphate and tartrate with the urinary-antiseptic and solvent action of cystogen.

DIGESTO

Digesto is a malt tonic made by the Theo. Hamm Brewing Co., of St. Paul, which possesses all the qualities of a perfect tonic of its kind, that is, a tonic made from hops. Such tonics are prescribed by physicians for convalescents in general, and likewise for people in a generally run-down condition.

THE OCONOMOWOC HEALTH RESORT

The only recently erected building of the above institution has been enlarged by an addition which furnishes twenty-seven rooms and a good-sized gymnasium. The entire building is under one room, yet by a unique arrangement eight rooms are absolutely isolated and have private porches. This arrangement provides for the care of acute disturbed mental cases, who need complete isolation from other patients. The rooms and porches are screened with artistic wood-work, which make effective guards, but do not suggest barriers.

Dr. Roger's institution is one of high standing.

SLEEPING OUT DOORS

It is to be feared that out-door sleeping in this climate has been attempted, even under the advice of physicians, by many who have suffered from the attempt, when, under proper conditions, only good results would follow. The sudden changes of our climate make it quite impossible, for a delicate person at least, to avoid bad results. A properly constructed window-tent meets all the conditions of this problem. With one of them the sleeper gets nothing but out-door air and yet keeps the body in the proper temperature with very light bedclothes and without the possibility of shock from cold or of any exposure of the body to low temperatures. The Walsh window-tent is unquestionably the best on the market, and it sells at a reasonable price. It is manufactured by the Cabinet Mfg. Co., of Quincy, Illinois.

PINE RIVER SANATORIUM

Both Minnesota and the Dakotas have reason to envy Wisconsin her beautiful, even ideal, spots for sanatoria; and we believe no other state in the Union, certainly none of equal population, has so many excellent resorts for those needing ideal environments and institutional treatment with the home atmosphere. Among such institutions the River Pines Sanatorium at Stevens Point, Wis., takes high rank. It is in the charge of Dr. Thos. H. Hay as medical director and Dr. F. E. Walbridge as surgical director. Its special work is the care and treatment of pulmonary and surgical tuberculosis.

GLUTEN FLOUR

The use of gluten-flour bread in the feeding of diabetics and in cases of marked acid dyspepsia, has long been accepted as the best practice, and because of this fact much spurious gluten flour has been sold. If we mistake not, one of the government experiment stations, that of Maine, we believe, some years ago investigated very thoroughly the whole subject of cereal foods in all forms, especially such as were recommended for the sick.

The bulletin of the station placed the gluten flour made by Messrs. Farwell and Rhines, of Watertown, N. Y., at the head of gluten flours, and shows many so-called gluten flours to be wholly valueless.

THE AFTER-TREATMENT OF CATARRHAL COLDS, ETC.

The various colds, "grippes," and catarrhs, that afflict the respiratory mucous membranes during the winter months, are extremely likely to leave their traces upon the general systemic vitality, in the form of a greater or lesser degree of anemia. This is especially true of those whose resistance is "below par," i. e., elderly people, young ill-nourished children, and weaklings from whatever cause. The constitutional after-treatment of respiratory disorders, among this class of patients, is usually more honored in the breach than in the observance. There can be no better routine practice than to order Pepto-Mangan (Gude) as a general tonic and reconstituent, especially when anemia is apparent. This exceedingly pleasant and ferruginous reconstructive is so distinctly palatable as to render it generally acceptable to all patients, and is so entirely free from irritant properties as to insure its ready toleration without causing constipation or disturbance of digestion.

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THE PREVENTION AND TREATMENT OF VENTRAL HERNIA*

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While it is true that post-operative ventral hernia is a secondary consideration and is oftentimes unavoidable following a severe and extensive abdominal operation, it is also true that many times this condition can be prevented by the proper choice and manner of closing the primary incision.

It is frequently necessary to freely drain septic cases, in order to prevent extension of the infection; and in this class of cases we rarely make an effort to close the incision, in fact, we are satisfied if the patient lives, the hernia being a subordinate matter. Infection is the chief cause of hernias that occur in operative wounds. In a study of a large number of these cases which occurred in his clinic, Mikulicz found that infection was the cause of the hernia in the majority of them. The giving way of a wound which has healed by primary intention is seldom seen, yet the few instances in which it does occur are altogether too frequent.

I wish to call attention to some of the methods we have used in St. Mary's Hospital to prevent these hernias. Many times we are tempted to remove an adherent appendix through a right rectus incision which was made primarily for a gall-bladder operation, but in doing so we may be obliged to continue the rectus incision several inches downward, severing one or more of the important nerves, which may cause the muscle to atrophy and thus allow a hernia to develop.

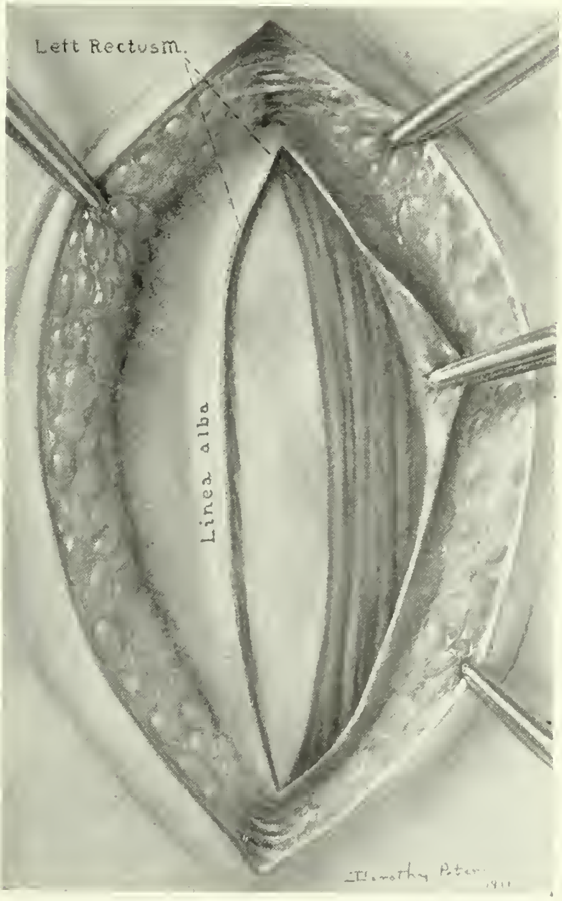

Fig. 1. Midline incision for pelvic cases, showing the incision slightly to the left of the linea alba through the rectus muscle of the left side. A few fibres of the muscle show on one side of the incision, and the main body of the muscle on the other.

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*Read at the 24th annual meeting of the North Dakota State Medical Association, Fargo, May 9 and 10, 1911.

A separate split-muscle incision for appendectomy is therefore a wiser procedure in these cases.

In performing pelvic operations we often find it necessary to make a very large incision exactly in the midline, and in the closure we must deal with a thin, firm, slow-healing fascia, while, if the incision is made just to one side, we shall have a small strip of rectus muscle in one flap and a thick, heavy body of the rectus and its fascia in the other flap. (Fig. 1.) In either case the closure would not be perfect, since neither the fascia alone nor the fascia with a small strip of rectus muscle in it would have good healing power. In making incisions of this kind it is always better to open the sheaths of both recti muscles and close the incision by bringing the muscles and their sheaths, respectively, together in the midline. (Fig. 2.)

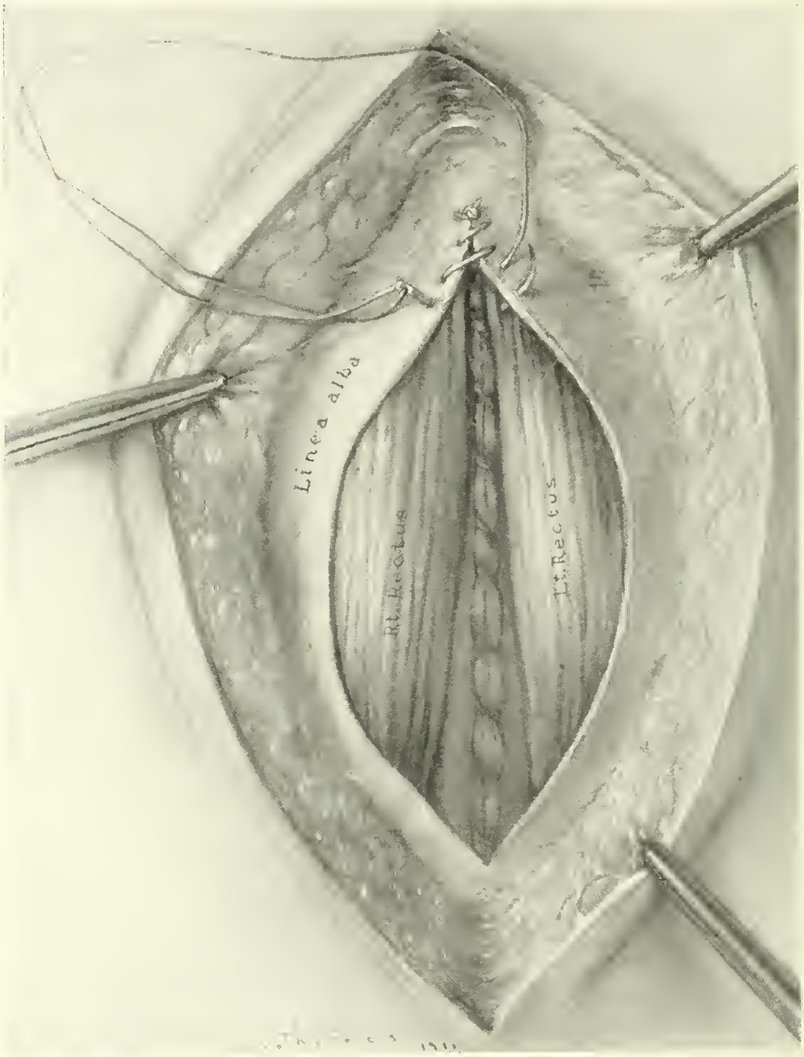

Fig. 2. Sheath of the rectus muscle of the opposite side open so that the two recti muscles can be sutured together.

An incision made through the aponeurosis of the external oblique can be closed with a better degree of strength if the aponeurosis is imbricated. We have practiced this method of closing the McBurney or split-muscle incision, which we make over the body of the internal oblique muscle. The aponeurosis in this region is thin, firm, and white, and the two edges sewn together will seldom heal. While this does not necessarily produce a hernia, it does allow the aponeurotic flaps to retract and the edges to separate, making a broad, flat, and unsightly scar, which can be avoided by overlapping the aponeurotic flaps face-to-face instead of suturing them edge-to-edge. We have used this method of closure in several thousand operations performed in St. Mary's Hospital. Many of the cases were drained through the incision and in only one instance (a large, fleshy female) have we known a hernia to develop.

Under no circumstances do we enlarge a split-muscle incision by cutting across the fibers of the internal oblique muscle. If the appendix is adherent toward the midline and the exposure is inadequate, we extend the incision through the internal oblique muscle into the sheath of the rectus, not cutting the muscle fibers. (Fig 3.) This will allow retraction of the rectus nearly to the midline, greatly increasing the working space and at the same time not interfering with any of the nerves, nor will it result in a tendency to weaken the union of the wound. (Fig. 4.) Occasionally the separation of the internal oblique fibers will be at a point too low for the removal of a high-lying appendix, or a cystic ovary or infected tube may be palpated just out of reach of the incision. In either instance there is a tendency in operating to make more room by cutting across the internal oblique muscle. A much better procedure and one less likely to be followed by hernia is to extend the incision in the external oblique muscle and make a new separation of the internal oblique fibers either high up over the high-lying appendix, or low down over the ovary and tube, as the case may require. We have frequently made several independent separations or splits in the internal oblique muscle, and in none of these cases has the abdominal wall been weakened. (Fig. 5.)

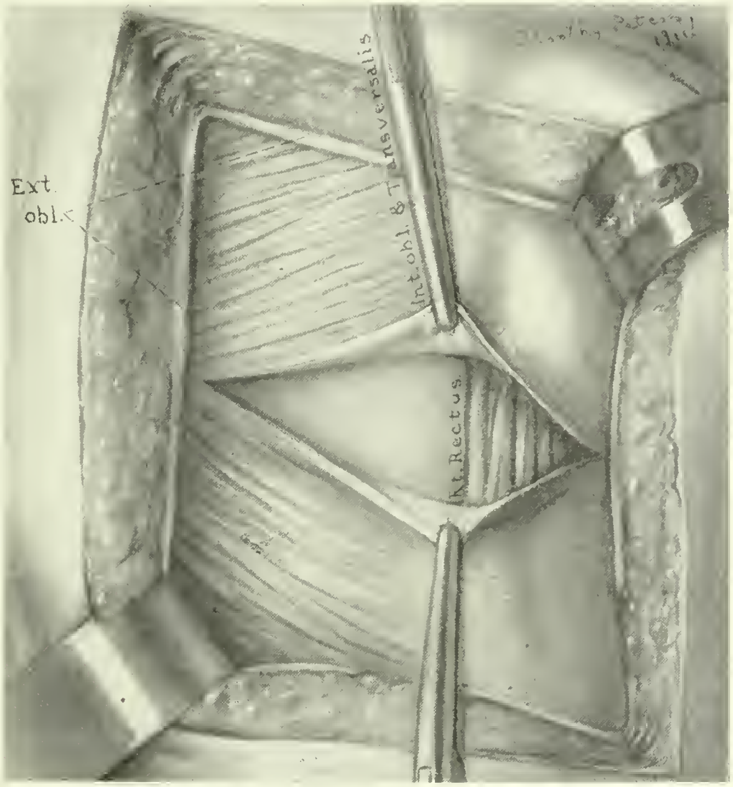

Fig. 3. Showing the sheath of the rectus muscle divided in line with the incision in the internal oblique.

We rarely see post-operative hernia following a suprapubic incision for an operation on the bladder. However, when the hernia does occur the repair is difficult. For this reason, when operating upon the bladder, C. H. Mayo has made, for the past ten years, a transverse incision at a point about an inch and a half above the pubic bone. The sheaths of the recti muscles are cut transversely and dissected off from the bodies of the muscle an inch and a half each way. The muscles are then separated in the midline, but none of the fibers are cut. When the operation is completed in the bladder, the muscles are allowed to drop together, and the cut edges of the sheaths are united by sutures. (Bartlett's Filligree—Coffey's Expansion Operation.)

Operation for the cure of ventral hernia has been practiced for many years, although it is only within recent years that the results have been to any degree satisfactory. Up to a few years ago the percentage of recurrences as reported from the large clinics varied from 40 to 60 per cent and, moreover, they were attended with a considerable mortality.

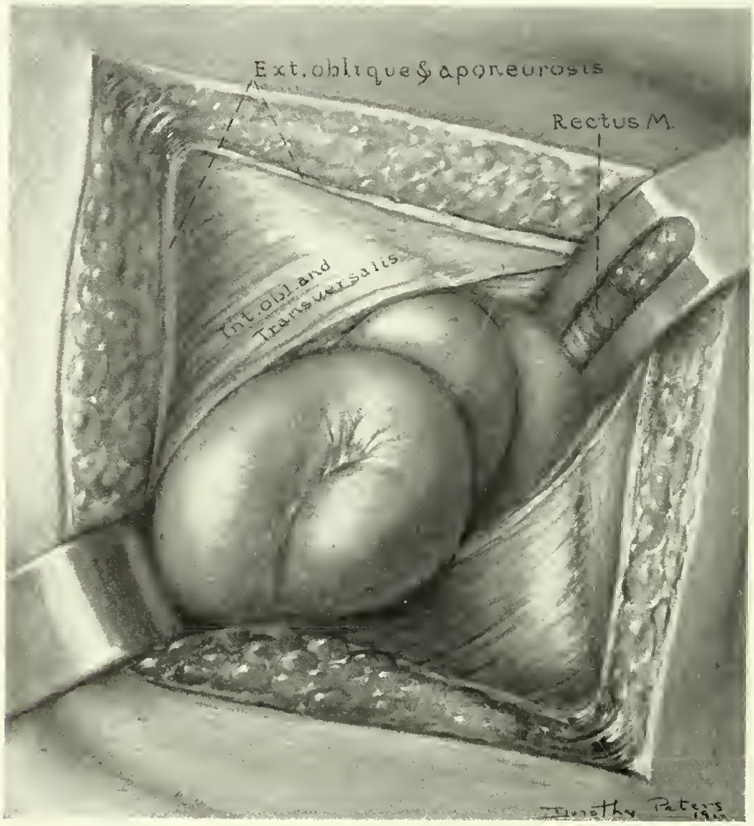

Fig. 4. The rectus muscle retracted to the midline.

To remove all of the scar-tissue and to close the gap in the abdominal wall by approximating the anatomic layers, respectively, would be the ideal method of repairing ventral hernia, but the mere fact that a hernia exists means that there has been a sloughing away, or atrophy, of a part of some one or all of these layers; and for this reason the anatomic closure should not be considered. Practicing this method in the past gave a high percentage of recurrences, and a mortality which, in all probability, was due to the sudden, marked increase of the intra-abdominal pressure caused by the reduction of the hernia and the diminution of the abdominal circumference by closure under extreme tension.

The majority of these hernias occur in fleshy people, and for many years it has been our custom to devote from two to six weeks time, if necessary, in preparation for operation. The preparation consists in reducing the weight and getting rid of excessive fat. This is a help in two ways: first, in diminishing the amount of adipose tissue in the flaps to be utilized in the closure; and, second, in reducing the fat in the omentum and mesentery and thereby lessening the increase in the intra-abdominal pressure at the time of reduction. In a great many instances we have been able to reduce the weight twenty-five pounds within four weeks by eliminating all carbohydrates and fats from the diet, and giving a rather effective laxative once a day. During this preparation, which is usually carried on at the patient's home, we have given the patient instructions to spend several hours each day in reducing or attempting to reduce the hernia. At times this may be accomplished by elevating the foot of the bed, and, if the reduction can be brought about, the patient is not subjected to the sudden increase of abdominal pressure at the time of operation. It is very important to bear in mind that the large pieces of omentum and coils of intestine which have been in the hernial sac outside the true abdominal cavity for a long period of time, have lost their normal habitat in the abdomen and that to force them back suddenly might cause very serious trouble.

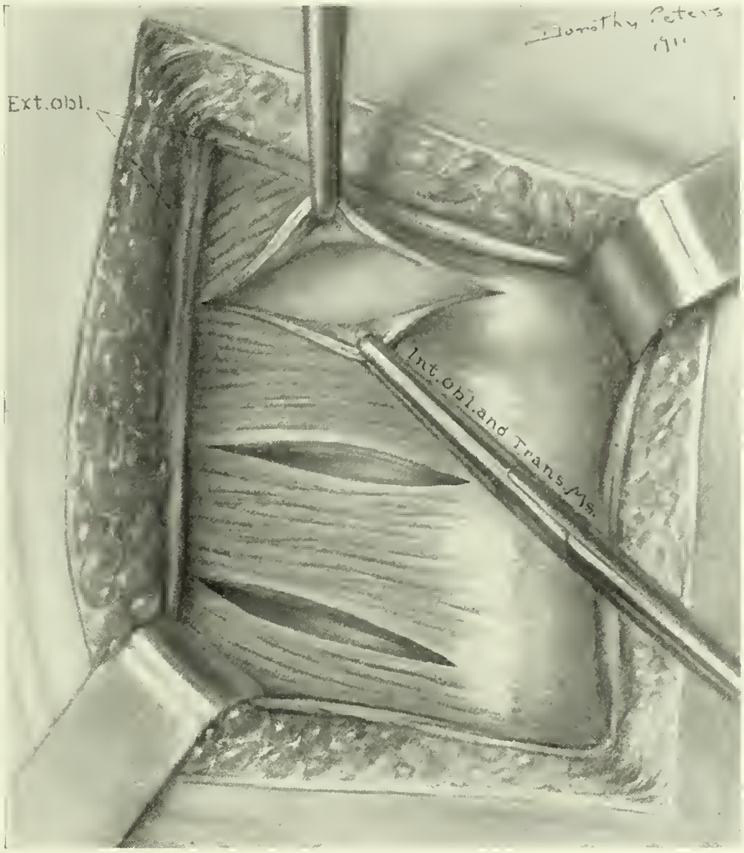

Fig. 5. Several split muscle incisions in the internal oblique to avoid cutting its fibres at right angles.

In operating upon abdominal lesions we have observed repeatedly the rapidity and strength with which the peritoneum heals. (a) We know that we cannot drain the general abdominal cavity for more than a few hours by a foreign drain of any kind because the foreign substance introduced into the abdominal cavity is very quickly walled off from the rest of the cavity by the union of the peritoneal coats of the abdominal organs. (b) An incision through the peritoneal surface of the bladder will invariably close up without urinary leakage, although a suprapubic incision not through the peritoneum, though carefully sutured, will frequently drain urine for a time. (c) Until quite recently it was believed to be necessary to sew the gall-bladder to the peritoneum when doing a cholecystostomy, in order to prevent the leakage of bile when the drain was removed. In recent years it has been our custom to stitch a tube in the gall-bladder and allow it to drop back to its normal position, knowing that the tube would be completely surrounded by adhesions within a few hours, from the rapidly healing peritoneum, and, in case the tube should come out, a complete sinus would be made from the gall-bladder to the skin, which would carry the bile to the surface.

It was not until we fully appreciated the reparative powers of the peritoneum that we began to utilize it to the best advantage, and as an end to simplify the operative technic in repairing these hernias. For years we have employed the principle of overlapping tissues wherever there was any difficulty in uniting wound edges, and until quite recently this overlapping was accomplished by flaps of fascia after the peritoneum had been closed. It was not an easy matter to dissect the peritoneum from the other tissues, and usually, by the time it was freed, each flap had been buttonholed and torn in several places, and they could not be closed with any degree of accuracy or strength.

Having observed the marked reparative power of the peritoneum in other locations, it follows naturally that we should adopt the simplest and easiest method to repair these hernias, that is, to make the autoplastic flaps of peritoneum, muscle, fascia, and scar-tissue, as the case may be, and to overlap all of these layers as one flap on to a similar flap of the opposite side. In this way the peritoneum of one flap is approximated to the aponeurosis and scar-tissue of the other flap. The method of choosing the flaps and the manner in which they are to be placed must depend upon the individual case. The overlapping may be from side-to-side, from above down with either flap outside, or it may be placed obliquely. This is a point which should be determined after the hernial contents have been reduced and the flaps measured up.

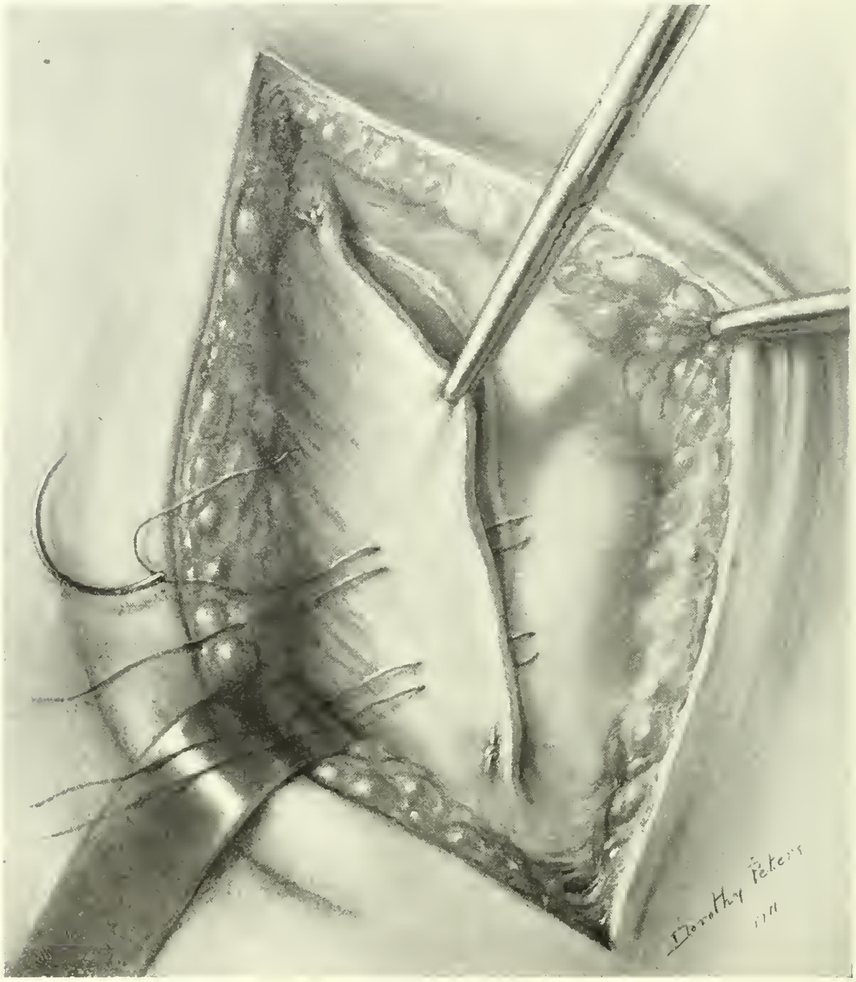

Fig. 6. Showing flaps composed of all the layers of the abdominal walls and the method of pulling in mattress sutures.

The steps of the operation are as follows:

First, Removal of the old skin-scar.

Second, Clearing the fat from the fascia for two inches in all directions.

Third, Dissecting the neck of the sac free from the aponeurosis.

Fourth, Opening the peritoneal sac and freeing the adhesions for at least an inch inside the hernial opening. Under no circumstances do we sacrifice any of the scar-tissue or excessive tissue of any kind except the fat.

Fifth. We make no attempt to separate the flaps into anatomic layers, but choose the most convenient way of overlapping the flaps one upon the other, the peritoneal surface of one flap lying on the aponeurosis of the other. If the hernia is wide and gaping several large mattress sutures of linen or chromic catgut are passed through the pedicle of one flap and the free edge of the opposite flap. (Fig 6.) The peritoneal surface at the pedicle of the overlapping flap is then stitched accurately to the aponeurosis of the opposite flap. (Fig. 7.)

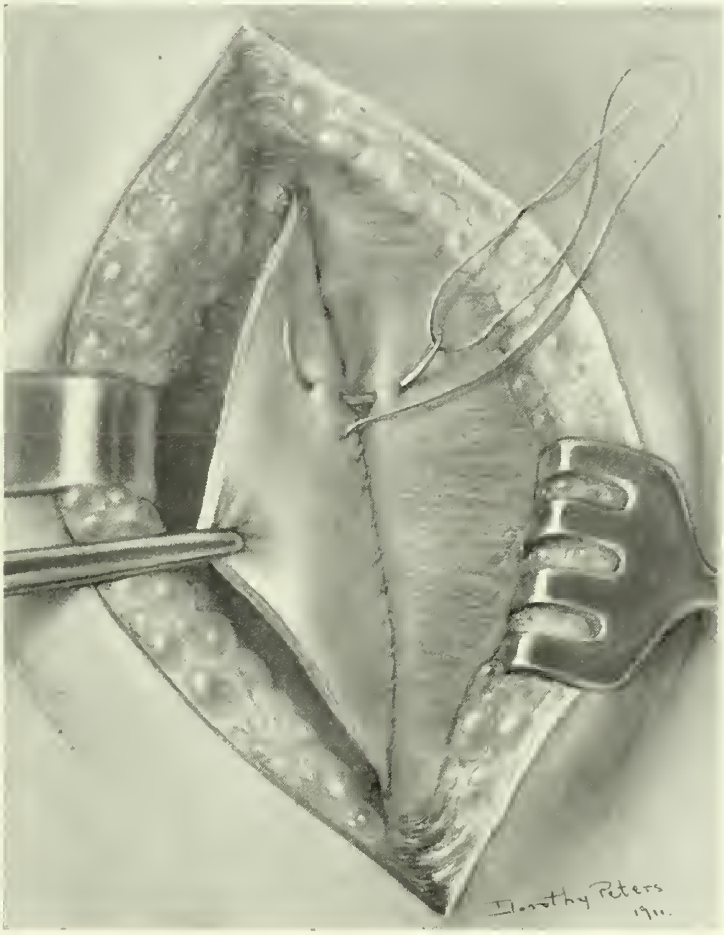

Fig. 7. Method of suturing the peritoneal surface accurately to the aponeurosis.

Sixth. The free flap is now allowed to drop on to the aponeurosis of the opposite flap and is stitched accurately in place. (Fig. 8.) Very careful hemostasis is most essential. In case there is any serum or a great deal of fat, it is best to drain either through the end or through a stab-drain.

During the past seventeen years we have operated upon 242 post-operative ventral hernias. One patient died from acute dilatation of the heart on the second day, and thirteen are known to have had recurrence.

In the ordinary case, fifteen to eighteen days in bed gives ample time for healing. It has been our custom to advise absolutely against wearing any truss or bandage which will make direct pressure upon the wound area. We do not believe that an appliance of this kind will prevent recurrence, but rather that it will have a tendency to push apart the flaps which we have imbricated, and that it would also, by pressure, interfere with proper circulation and healing in the tissues. However, we have found that most of these patients, especially the fleshy individuals, are made much more comfortable by wearing a general abdominal binder which does not make direct pressure at any point.

DISCUSSION

Dr. E. P. Quain (Bismarck): Dr. Judd has again brought up the subject of intercostal nerves in the abdominal wall, which I mentioned a while ago.

The immediate union of muscle fibres and of fascia, after being cut, may be very complete and satisfactory, but when an intercostal nerve is severed in the incision, trophic changes take place in the tissues supplied by the nerve and permanent damage may ensue.

Ramstrom called attention to the fact that if one intercostal nerve is severed in the abdominal wall, the two adjacent nerves may re-establish a perfect nerve communication to the isolated area, so that no permanent impairment follows. He also showed that if two adjacent nerves are cut, the trophic disturbance will remain permanently.

Moynihan makes use of this principle in exercising the greatest care possible to save intercostal nerves. He spares the nerves in making the incision, retracts and protects them, and performs the necessary intra-abdominal work between the nerves spanning the wound.

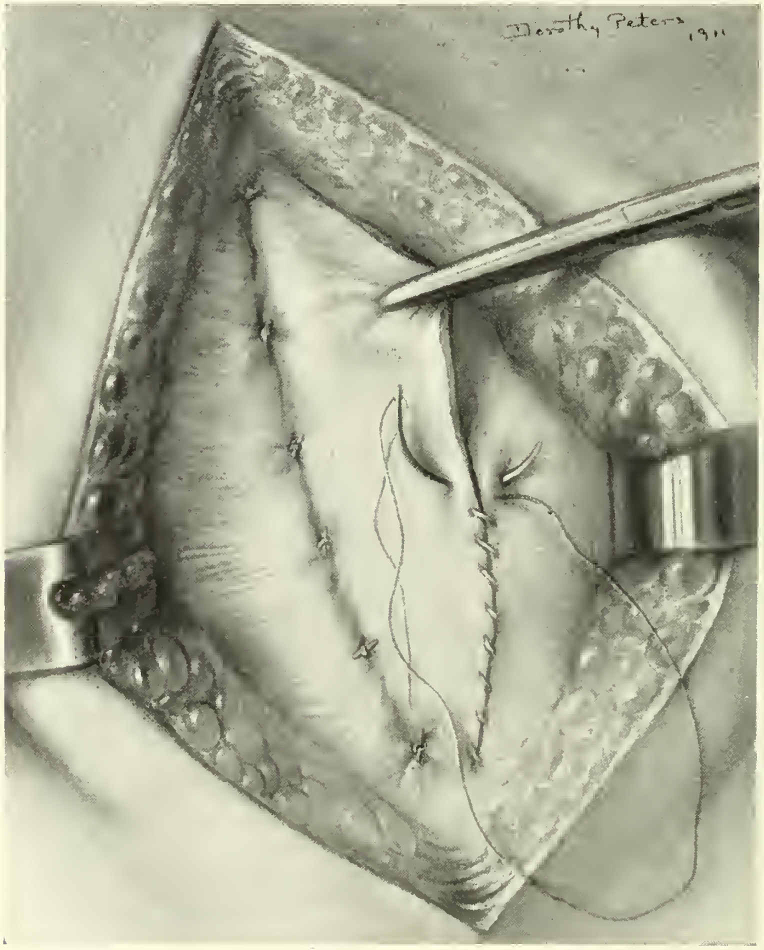

Fig. 8. Approximating the peritoneal surface of one flap to the aponeurosis of the other flap and suturing the free edge to the aponeurosis.

I may be mistaken, but it has seemed to me several times in cases of omental adhesions following abdominal operations that the adhesions had formed chiefly under the area supplied by destroyed nerves, and that the peritoneum at that point had caused the omentum to adhere. If we make a lateral abdominal incision and cut across the fibres of the internal oblique we shall probably sever one or more intercostal nerves. The blood supply to the region between the linea semilunaris and middle line, the deep epigastric artery, is intact. But the severing of the nerve supply has devitalized the deep tissues of the abdominal wall. Consequently the rectus muscle loses its tone, stretches out, becomes thin, and may allow a protrusion, a hernia, to take place. The peritoneum having lost its nerve supply, is practically dead, and the omentum, always ready to go to the seat of trouble, covers the devitalized area and becomes permanently adherent.

In the matter of closing the abdominal wound, I am, with Dr. Judd, a firm believer in the imbrication method. I have not had any post-operative hernias since adopting this method, so far as I know.

The cut edges of the external oblique aponeurosis freed from fat and areolar tissue with the knife for half an inch on one side and the rectus muscle peeled away under the fascia on the other side, are caused to overlap by a double running suture. A silkworm gut suture (or more than one if the wound is long) is then put through the skin about 1½ inches from the wound and through the two layers of the aponeurosis. It should not go into the muscle, and should be returned through the fat and skin at the same point where it entered and be tied firmly over a button. This method of "anchoring" the fascia causes much less pressure necrosis than the older methods of tying silkworm gut across the wound.

Dr. J. C. Suter: I have nothing to add to what has already been said on this subject. However, I would like to ask Dr. Judd in regard to operating for ventral hernia. When he spoke of returning omentum, how much of the omentum adherent remaining outside would he remove?

Dr. W. H. Godfrey (Russell, N. D.): I don't think I quite understood Dr. Judd. Why place the two recti muscles brought directly together and the fascia then approximated over them?

Dr. E. S. Judd (Essayist): I wish to thank the Association for the opportunity of presenting this paper, and also the members present for their discussion of the subject.

Dr. Quain made a remark about the interference with the nerve-supply. That is what I intended to illustrate, but perhaps did not make myself clear. The point about omental adhesions is perhaps best illustrated by the work Dr. Murphy is, and has been, doing on joints. Wherever there is ankylosis of a joint he puts a flap between, so that they cannot heal together. That is the same point Dr. Quain makes in putting tissue between to prevent healing.

The second diagram is intended to show the recti muscle sutured together with the fascia.

In regard to saving the omentum in the hernia: Our practice is to save all the omentum that may be useful at any time to the patient. We see frequently the tube absolutely walled off by omentum, and if we find it in the hernial sac we interfere with it as little as possible.

THE HOSPITAL OF THE UNIVERSITY OF MINNESOTA: ITS ECONOMIC AND EDUCATIONAL VALUE*

By Charles Lyman Greene, M. D.

Professor of Medicine and Chief of the Medical Clinic, University of Minnesota

ST. PAUL

In his presidential address delivered before the American Medical Association at Los Angeles, Dr. John B. Murphy enthusiastically endorsed the work of the Association's Council on Medical Education in advancing the standards of requirements in American medical schools. He stated that during the last seven years thirty-seven medical colleges had died or become merged in other institutions, that the number of medical students had been reduced nearly one-fourth, and that thirty-five per cent of those students entering last year were registered in high-grade schools.

The reduction in the number of medical students means at this time the elimination of many who are unfit, and smaller classes under higher requirements guarantee greater average ability in the student body and vastly increased effectiveness in teaching. The high-grade schools must, nevertheless, be prepared for a steady increase in registration, as is shown by the experience of your own school, both in the past and at the present time.

Our obligatory year of hospital interneship became effective for matriculants this fall, yet our freshman registration shows an increase of nearly twenty per cent above that of 1910. Past experience proves that the check imposed upon registration by the adoption of higher standards is radically operative only for a short period.

It appears from the Council's report that no less than twenty-eight American medical schools now require two or more years of work in a college of liberal arts in addition to a four-year high-school education, and that nineteen more, making forty-seven in all, will have higher preliminary requirements in 1912. You will remember that only four years ago Minnesota was one of six colleges which had such requirements.

Dr. Murphy asked that credit be given the Council for raising State Board standards for admission to examinations for licensure, and it appears from the report of the Council that no less than nine states now require that future candidates shall have completed one or more years of work in a college of liberal arts. He emphatically declared that the admirable work of the Council should be financially supported by the Board of Trustees and morally encouraged by every member of the American Medical Association. Dr. Murphy voiced the unanimous sentiment of modern physicians who have the interest of the medical profession and the welfare of the people at heart. Everywhere we find an awakening of interest in, and a more enlightened appreciation of, the problems which medical teachers are now facing.

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* Read at the 43d annual meeting of the Minnesota State Medical Association at St. Paul, Oct. 5 and 6, 1911.

The marvelous advance of scientific medicine during the past two decades has been of incalculable benefit to the profession and to the people it serves, but has created new and difficult problems, both in teaching and in organization, and involved additional hardship for the needy student.

The greatest necessity exists at this time for the establishment of scholarships and loan funds to the end that under higher standards extraordinary ability may not be smothered by poverty, and this Association should actively interest itself in this undertaking.

All things have been working together to bring about radical changes in the status of medical education in this country. The necessity for technical training in its most practical objective form found its first expression in the rapid development of laboratories devoted to the primary and fundamental branches of medicine. The enormously increased expense represented by buildings, equipment, and a salaried teaching staff, proved to be the wedge and the sledge to split asunder the good and the bad in medical colleges. No efficient medical college can exist on students' fees alone, and medical education must now be left in the hands of endowed schools or properly supported state universities.

The Council of the American Medical Association has done a great work, but we should not forget the unbiased, drastic, yet invulnerable report of Dr. Pritchett and Mr. Flexner on "Medical Education in the United States and Canada." The state of affairs revealed by this extraordinary document was both ludicrous and appalling, and its appearance was immediately followed, on the part of many of the low-grade colleges, by a genuine effort to clean house, and, on the part of some, by sudden and complete collapse.

Yet another factor of large and rapidly growing importance in the movement for higher standards is the attitude of the press and the public. When, in our state legislature last winter, an effort was made to block Minnesota's movement towards higher standards and to cast her down from her high place in the history of American medical progress, the opposition of the press and of our legislators was practically unanimous, and the outrageous bill was dead the moment that its real purpose and origin became known.

One need be neither teacher nor physician to realize that students must now have an adequate preliminary training in a college of liberal arts in addition to a four-year high-school education to enable them to undertake and carry out the technical studies fundamental in modern medicine. Elementary common sense suffices for an understanding of the fact that if the field of our profession is enormously broadened the courses in medical schools must be correspondingly lengthened; nor can any man doubt that it is the duty and obligation of a medical school to maintain the highest possible standards of scholarship. Those of us who graduated in medicine two decades or more ago know, to our sorrow, what sacrifices of time and money have been required to supplement primary deficiencies of instruction and to keep us fairly abreast of the onward sweep of medical progress. We have to thank the low-grade schools and the obstructive reactionary for much of the distrust and opprobrium under which our profession chafed for years, but which is now being rapidly replaced by intelligent, sympathetic, and helpful interest wherever standards for medical education and licensure are highest.

In her medical past Minnesota has been exceptionally fortunate in having, as moving spirits in the profession, far-sighted, broad-minded medical men, who secured for her high standards for licensure and a progressive state medical school, the result being that, in sharp contrast with the greater number of her sister states, she has long been blessed with what President Vincent has called a medical "corps d'elite," a profession representing a selected and sifted product.

The faculty of your University medical school realizes that it has peculiar obligations which must be wisely and fully discharged. The older ideas which for years dominated most of the medical schools of the country too often made personal prestige the chief aim of the teacher and prevented any full conception of his function and duty. These *false ideas* have given place to *high ideals* in the best of our modern schools, to the feeling that, as the medical man's life and career are consecrated to noble purposes, the teachers of medicine, especially, must make public service their one great aim.

Your University medical school has established certain principles of action which will meet with the approval of this Association, and it is my privilege to set some of these before you today.

First, *as to the character of the school.*—At the present time there are three distinct types of institutions in which teaching and research are rightly undertaken. These are:

First, the institutions in which research is almost the sole function, such as the Rockefeller Institute.

Second, those of the type of Johns Hopkins in which research and the training of teachers represent the cardinal purposes.

Third, that large group of schools which must combine the training of students for the field of general practice with graduate work and the largest possible amount of research.

We believe that a state university medical school should devote itself primarily and chiefly to the training of students for general practice. We believe that it should make its entrance and scholarship standards high, its methods of instruction thorough and insistently practical. In no other way can it guarantee to the profession of the state and to the people it serves a carefully selected, high-grade product.

Your school cannot make research and the training of teachers, primarily, its chief concern, nor can it neglect these things, for, while a school may be judged at home by its student output, it will be judged abroad very largely by its contributions of men and facts to the pedagogic and research fields. We believe that it is not impossible to combine these, and we are perfecting a mechanism by which we hope to make co-ordination and co-operation the keynote in our research, as it already is in our routine teaching.

We are not in the least interested in the production of specialists, believing that even the seven-year course which is now demanded of our students, is entirely insufficient to do more than teach the individual to think for himself, and to give him a thorough and intensely practical knowledge of the basic facts and technic necessary to the intelligent practice of modern medicine.

I have purposely placed post-graduate schools last on the list, for I believe that the school which exists for no other purpose than post-graduate teaching has no place in the modern scheme.

On the other hand it is the duty of our school, and of all others possessed of proper equipment, abundant clinical material, and adequate funds for support, to establish and maintain at the earliest possible moment a teaching mechanism which shall enable the practising physician to obtain access to such courses as he may desire for the broadening and modernizing of his knowledge.

We believe that the greatest need of the medical school of today is the more general introduction of objective teaching on the clinical side and a closer contact between teacher and student. The days of medical oratory in the lecture-room are past, and the so-called systematic lecture must be superseded, so far and as rapidly as possible, by the systematic presentation of the students' clinical work.

The one institution that makes it possible to fulfill these requirements is a university hospital. This, when of adequate size, properly equipped, and effectively organized, constitutes the ideal clinical laboratory, and is, at the same time, an economic asset of the state and of incalculable value to the sick poor.

Of late years the statement that the sick poor receive in a teaching hospital better and more efficient care than the rich can obtain at home has become a truism. In every hospital the welfare of the patient is the primary and chief concern, but in public hospitals the best care of the patient and medical teaching are inseparable.

No consultation in private practice can compare in effectiveness with the continuous, systematized, and co-ordinated efforts of trained men, reinforced by the services of well-drilled assistants, and having at command every modern appliance, diagnostic and therapeutic, of the ward and the laboratory.

In the case of the poor patient in such a hospital every step in diagnosis or treatment is made the subject of consultation, and he receives the benefit of suggestions made by men representing practically every department of medical science.

Those in immediate charge of his case are constantly under the healthful stimulus represented by the critical observation of students and colleagues, and have no opportunity to fall into slovenly ways or follow any easy-going routine.

In the organization of your University Hospital we anticipated the dictum of Flexner as expressed later in his epoch-making report on "Medical Education in the United States and Canada," in which he says:

"The superintendent must be intelligent and sympathetic; the faculty must be the staff, solely and alone, year in and year out. There will be one head to each department, a chief, with such aides as the size of the service, the degree of differentiation feasible, and the number of students, suggest.

"The professor of medicine in the school is physician-in-chief to the hospital, the professor of surgery is surgeon-in-chief, the professor of pathology is hospital pathologist."

We had already been operating our temporary hospitals on exactly this plan, and shall so continue to operate the new hospital, for such an organization meets the necessities of both patient and student.

The primary need, from the standpoint of both student and patient, is thoroughness in examination, and this is obtained in the highest possble degree by the systematic work done and the numerous checks imposed by our plan of organization. As to treatment: Any staff man or any member of the teaching faculty who sees the case, either in ordinary or general rounds, may criticise or suggest, but only the Assistant Chiefs of Division and the Chief of Clinic may actually prescribe, except in emergency.

Concentration and completeness, as well as the systematic presentation of clinical topics, demand a proper grouping of cases. To obtain this we have done away with that false sense of proprietorship in cases which so hampers the clinical usefulness of most hospitals, and we make teaching assignments without regard to the nominal rights of men in whose services or divisions the cases originate.

We thus place another check upon the work previously done, furnish an additional opportunity for that mutual criticism indispensable to the best work, and emphasize the fact that co-operative team-work, and not individual prestige, is our accepted policy.

We seek to secure the proper co-ordination of all departments in the medical school, whether clinical or not, and hope to render access to the wards of the Hospital freer than in any other institution in the world. Visitors from the outside are always welcome to participate in rounds, and every department is invited to send its representatives and favor us with criticism and suggestion.

Our special obligation to the student may be divided into several component parts:

First, we had to secure for him such a teaching mechanism as might serve to bring before him clinical medicine in its most modern and practical form.

Secondly, to teach him to do, himself, those things which are necessary to make him a competent and up-to-date general practitioner.

Thirdly, to teach him to observe and to think for himself.

All of the foregoing needs are met by the systematic training and close observation which a university hospital affords.

We, further, desire to impress upon the student the doctrine of individual fallibility. We try to teach him humility, and make him understand that even after the seven years of hard work that now constitute his course, his diploma is but proof of good work done and an assurance of proper preparation for further study.

We realize, moreover, that mere teaching cannot form character or morals, and that these things must be constantly brought home to the student by precept and example. He must work in a proper atmosphere.

If there be any one thing in our hospital organization in which we take more pride than in any other it is the fact that we have established a hospital atmosphere which makes for unselfishness, team-work, and absolute harmony.

Second, *as to the medical profession of the state.*—The first matter to receive consideration in connection with the establishment of the hospital was the elimination of that false principle upon which all other university hospitals with which I am familiar have been established, namely, that which permits any man, however well-to-do, to enter the hospital wards and receive free treatment upon the payment of a nominal and wholly trivial hospital charge.

Your hospital admits no one, knowingly, who is able to pay ordinary physicians' charges and hospital fees, and enters no patient except upon your recommendation.

We desire to make both out-patient and indoor departments of the Hospital useful to physicians referring obscure and difficult cases for diagnosis or treatment, and we have arranged a mechanism by which we hope to furnish an adequate synopsis of the case-history, the course of the disease, and all unusual diagnostic or therapeutic procedures, to all of you who are sending cases to the Hospital.

The medical school and hospital belong to the people, and must render social service of the highest and most unselfish type. They belong also, in a peculiar sense, to the medical men of our commonwealth, and must be so operated as to yield to them the greatest possible amount in educational value and to guarantee the fitness of graduates.

Minnesota holds by right one of the highest places in medicine. Her pioneer work for higher standards brought to her the finest body of medical men of which any state in the Union could boast. Her medical school and state licensing board have been potent factors in medical progress, and nowhere in our country has school or board received more loyal support from a State Association.

Social service and scientific progress march together, and the medical profession of our state must keep its shoulder to the wheel to the end that our traditions and good fame may be preserved, and that we may continue to promote and advance the well being of our profession and the welfare of the people it has so long and so loyally served.

DISCUSSION

Dr. Richard Olding Beard (Minneapolis): It is difficult to add anything to, and surely there is nothing to subtract from, the concise and epigrammatic presentation of his subject which Dr. Greene has characteristically made. His paper might fitly be termed a synopsis of method in the medical education of today.

We have reached a time in which medical schools, whether of choice or of necessity, are concerned with the task of growing better, instead of growing bigger. The struggle for numbers has given way to the desire for quality in medical matriculants and medical graduates alike. The relative scarcity of students in the present, as compared with their superredundancy in the past, has even created alarm in certain quarters; but, as a matter of fact, doctors are still too many, and just now the difficulty is one merely of distribution, rather than of famine.

The tendency of physicians to flock to the cities must be met and can be met only by the improvement of methods of practice and the development of better clinical facilities in the smaller towns. We are going through a period of necessary adjustment of modern scientific medicine to the demands and conditions of practice, and one of the grand results of this adjustment is the movement for fewer and better equipped schools.

Effective medical education today requires two things:

1. A superior preparation for specifically medical study,—a broad foundation laid in biology, chemistry, physics, and the modern languages.

2. The improvement of clinical opportunities and the performance of a larger clinical service by the advanced student.

Despite of these strenuous requirements, the number of medical students has been only temporarily diminished; and today, in the very face of them, the entering classes at the University of Minnesota are steadily but moderately increasing in numbers. I think that the University can confidently say to the profession that enough men and women will be found and will be fitly trained for the medical service of the future.

The complaint has been heard that medical education has become too scientific in method,—an immediate consequence of the necessary primary development of the laboratory or foundational branches in medical science. The real needs of the present call for more, not for less, of scientific method. They may be expressed in two epitomes:

1. That the laboratory subjects be linked up with the clinical branches; that reciprocal relations be established between them; that the opportunities for the application of scientific principles to practice be multiplied.

2. That clinical work be pursued, increasingly, along laboratory lines.

These are the needs of which the teaching-hospital permits the supply. These are the advantages which a hospital system, under direct control of the teaching-staff and in immediate ownership of the University, will secure.

No hospital, in fact, can fully achieve these things excepting as it is an integral part of the university school of medicine. Mere hospital affiliation with a teaching-institution, like the mere affiliation of the school of medicine itself with the university, is a delusion in fact and a disappointment in results.

It has become true, and fortunately true, as Dr. Greene has suggested, that modern medicine can be taught efficiently only by the largely endowed school, and such endowment can be looked for, either from public or private sources, only under the efficient guarantees of educational fitness which a full and close relationship with the university affords.

The control of medical education has become a function of the State, and Minnesota should congratulate herself that she has achieved the principle of centralization under the guardianship of her great State University. If she is properly to perform this function, the State must also support, in the interests of medical education, the teaching-hospital. The clinic by grace of private institutions or by privilege of city or county hospitals, is no longer adequate to educational needs. There is room and there is use for a great public hospital in Minnesota which shall serve the State as the clinical laboratory—the object lesson complex—of its State-directed medical study; which shall serve as the agency of university-extension study for the progressive practitioners of the State; which shall serve, finally, as the means by which those who cannot pay for medical treatment and hospital care may receive the best of both that the State can afford, without money and without price; by which the several communities of the State may have the direct burden of their sick poor lifted from them; and by which their inefficients, because of illness, may be returned to them, as speedily as possible, restored to efficiency as self-sustaining social factors.

The need, the place, the scope of the university hospital system will be determined by the experience of time and by the sum-total of the educational and economic results it offers to the public. We predict that the social need will prove great, that its place in our educational system will be fixed, and that the scope of its usefulness will be broad as the boundaries of the state.

Dr. F. F. Wesbrook (Minneapolis): In the consideration of the utility of our University Hospital, to the people of the State, it is necessary to see the whole picture of Minnesota's medical problems, if we are to retain the proper perspective and plan wisely to fulfill our obligations and rise to the unique position which obtains in Minnesota. We are to be congratulated that the reader of the paper has thoroughly realized this need and has permitted us to take into consideration the present situation in regard to medical education in which our University Hospital must play its part.

Comparison of the daily press and magazines of today with those of five or ten years ago, will convince the most casual observer that a tremendous public interest has been aroused in the profession of medicine, which was formerly considered by the public to be a field apart and, too often, assumed by members of the profession to be sacred ground. The public is expecting and, in fact, demanding the assumption of new relationships, the formulation of new ideals, and the return to those higher standards which obtained in the earlier years of American medical education.

The State's teaching-hospital should be used to its full capacity in fitting our successors for the care of their fellow citizens and in advancing our knowledge. Nor should it be limited to the teaching of our successors and their corps of nurses, but it should be one of our strongest mechanisms for our own advancement; that is, for graduate teaching to physicians and nurses of the present day, so that there may be no interruption to the growth of the profession of the State in efficiency.

In certain quarters fear is being expressed that our educational mechanisms will fail to supply the demand, owing to the obstacles interposed by the requirement, from each future practitioner, of increased time and expense in his preparation. This phase of the question has been clearly presented by the essayist. Minnesota has taken the middle ground in her requirement, not of a degree, but of two years of specially selected work which is foundational for medicine, and which at the same time furnishes a most desirable education for any walk of life.

The requirement of a fifth or hospital year is logical, and although your University is the first to make it a requirement for graduation, undoubtedly others will follow. Although prophesy is a hazardous profession, it is not unlikely that the trend in medical education will be towards Minnesota's plan, in order to make quite certain that the student is fitted practically, as well as theoretically, for meeting the responsibilities of his profession. This requirement will secure better interne service for the hospitals which coöperate, since the granting of the degree by the University will be dependent upon satisfactory and efficient hospital interne service. It will bring about comparison of services and methods which must stimulate the institutions and be a source of inspiration for the whole State. Such hospitals, coöperating with your University Hospital, should become, in very fact, foci of medical growth and centers of graduate medical teaching and research.

Let us return for a moment to the question of whether the supply will meet the demand and the preparation which must be made by Minnesota to bring this about. Assuming that on the present basis of population Minnesota is at present supplied with about the correct number of physicians, i. e., between two thousand and twenty-five hundred, and assuming that the average length of service is from twenty to twenty-five years, about one hundred students per annum should be graduated. Many will come in from other colleges and many of those in Minnesota will practice elsewhere, so that they offset each other.

Our State Board of Medical Examiners has been a leader amongst the states, and, as a result, the profession of medicine in Minnesota occupies a conspicuous and unique position in our country, having been characterized as the most efficient by no less an authority than Dr. McCormack.

We may safely assume that a mechanism will be adapted to the ever-changing conditions to perpetuate this state of affairs and protect the citizens of Minnesota against those who are less well prepared for professional service than Minnesota's own sons who have been prepared for their professional duties and responsibilities by Minnesota's own mechanism.

Entrance and other standards have been raised almost continuously for the past ten years, and the freshman registration in the College has varied accordingly. In 1901-02, 136 entered; whereas, in 1902-03, when one year of college work was required, it fell to 54. During the next five-year period, the matriculation varied between 49 and 58, and when two years of college work were required, in 1907-08, only 32 students matriculated. The next year, 1908-09, a further requirement was exacted by the rigid enforcement of definite specified scientific and language standards. The matriculation, however, was 48. In 1909-10, 50 students matriculated. In 1910-11, although the fees were raised fifty per cent, 51 registered and this year there are 59 freshmen registered, or more than have entered since 1901, notwithstanding the fact that again the standard has been raised by requiring one year hospital interne service for graduation.

The standards are being raised throughout the country, and by the coöperation of this Association, the State Board of Medical Examiners, and your University, we may expect to see a demand for facilities for educating and graduating 100 or more students per annum. This is the logical and inevitable result. We see the trend and have ample opportunity to prepare for meeting these responsibilities.

The essayist has particularly called your attention to the fact that the College of Medicine and Surgery of the University of Minnesota is the college of this Association and of the profession of Minnesota. The College staff can succeed in giving to Minnesota what she needs only as these needs are realized and presented by the profession.

It is hoped that every member of this Association will take the opportunity to inspect the University Hospital on this and every other possible occasion. A cordial welcome will be extended at all times. We all realize that success is to be attained only by coöperation; and your suggestions and criticisms are needed. We shall rely upon your continued help and interest, which have never been wanting. In order to secure the coöperation without which success is impossible, we sincerely hope that at an early date this Association may arrange to hold a session on the University Campus.

It is unfortunate that today's program does not officially provide for discussion of this very important paper by others than members of the University staff. I am sure that the President will grant my request that others be urged to take part in the discussion, in order that we may have the advantage of advice and suggestion which may be put into effect during the first and most critical year of the University Hospital service.

BONE-FORMATION IN ABDOMINAL CICATRIX FOLLOWING LAPAROTOMY*

By Charles L. Sherman, M. D.

LUVERNE, MINNESOTA

In reply to the solicitation of our Secretary to present a paper at this meeting of our Society, I submit a report of the following case:

Mr. E. N. C., aged 34 years, was operated upon on Jan. 17, 1900, at one of the principal hospitals in the State for chronic non-suppurative appendicitis. Recovery was uneventful until six weeks after the operation, when the adhesive strips applied to support the abdominal wall were removed by the patient. At this time he felt some discomfort in the scar-tissue, and he claims that he could distinctly feel a hard movable substance beneath the surface. This condition continued to exist, causing considerable discomfort and at times acute pain, until the spring of 1911, a period of eleven years. During this time he had frequent attacks of indigestion and severe headaches. He consulted eye specialists and stomach specialists, but secured very little relief.

In the early spring of 1911 his attacks of pain became more frequent and severe, especially when walking rapidly upstairs, doing heavy lifting or running, and then he would be seized with a severe pain in the right inguinal region. This pain would sometimes last for hours. Attacks of indigestion and headache became more protracted and frequent. His general health was considerably impaired. There was also some loss of weight.

Physical Examination.—When I first examined him in August there was revealed a hard movable substance beneath the surface in the abdominal wall where the appendix had been removed. An operation was advised and readily consented to.

The patient entered the Luverne Hospital on October 21, 1911. An incision was made along the outer edge of the right rectus muscle directly through the old scar, and a piece of bone tissue was found just beneath the fascia of the external oblique. This formation, which was true bone, was two inches in length and one-sixteenth of an inch in thickness. At the upper extremity it was one-quarter of an inch in width and was attached to the under surface of the fascia. It tapered irregularly to a sharp point at its lower extremity, and at this point it was not attached, but was freely movable. This condition accounted for the severe pain the patient experienced when walking upstairs, lifting or running.

The bone-formation was removed and the incision closed in the usual way. The patient recovered rapidly. The attacks of pain in the right inguinal region have disappeared, and he has had no more attacks of headache or indigestion. His general health is much improved.

I have reported this case because of its rare occurrence and because of the lack of any satisfactory explanation of bone-formation in this region.

The patient's family history is negative with the exception that his mother died from carcinoma.

In examining the medical literature on this subject I find in the *Jour. of the A. M. A.*, of December 2, 1911, reference to an article in a German journal by Benelli describing two cases of actual bone-formation in the cicatrix after laparotomy. He also cites ten clinical cases from the literature. He states the majority of the patients were men, and nearly all were over forty years of age. We also find references of osteomata occurring unconnected with bone and of bone-formation in certain muscles, especially the deltoid and adductor longus.

If we accept Cohnheim's inclusion theory with reference to the origin and development of tumors, we can explain this formation of bone in the abdominal wall. It is that embryonal cells that were not used during fetal development, were stimulated into active growth by the injury and the irritation of the incision.

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*Read before the Southwestern Medical Society, Jan. 11, 1912.

The fact that the patient's mother died from carcinoma suggests the embryonal-cell theory as an explanation.

I wish to state that Drs. Spalding and Bliss were associated with me in the treatment of this case.

LARYNGEAL PAPILLOMA AND SUBPERITONEAL PEDUNCULATED FIBROID*

By Arthur A. Law, M. D.

Clinical Professor of Surgery, University of Minnesota

MINNEAPOLIS

During the last year we have had reports of two operations for complete removal of the larynx presented to the Academy. In each instance the operation was done for malignant disease of this organ. Both patients died within a few days. The high mortality-rate of the radical operation, its extreme mutilation, and the difficult after-care, make it one of the major procedures of surgery.

I have to report another and perhaps simpler phase of laryngeal surgery.

On June 30, 1910, K. B., boy of 12, referred by Dr. C. R. Sanborn, of Bemidji, Minn.

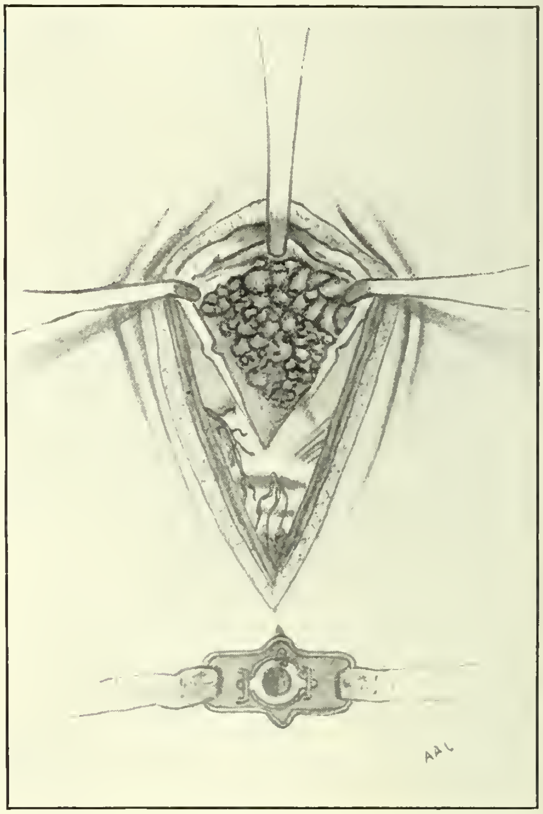
The child for two years past had been hoarse, with stertorous respiration; some cyanosis and with the auxiliary muscles of respiration called into play. The alæ were pinched, lips vivid, the conjunctiva congested, and his voice the faintest whisper. All these symptoms were greatly exaggerated at the time of his admission to the hospital.

Diagnosis.—The laryngeal mirror revealed a large cauliflower growth, practically filling the larynx and occluding the chink of the glottis; probably papilloma.

The morning after he was admitted I was called hurriedly to the hospital and found the boy in extremis. He was livid, with complete paralysis of respiration, dilated pupils, clammy skin, cold extremities, etc.; however, a faint thready pulse still persisted. Immediate relief was imperative, so, rapidly, without any aseptic precautions, a knife was plunged into his cricothyroid membrane, turned on edge to spread the wound (until a tracheotomy-tube could be procured), artificial respiration resorted to, and inhalation of oxygen given. After thirty minutes of hard work the child revived.

He was in wretched physical condition, so a tracheotomy-tube was left in situ in the emergency incision until he could be built up.

July 16th, under local anesthesia with B. eucaine a low tracheotomy was done, going through the isthmus of the thyroid. This was necessary to get the tracheotomy-tube out of the way, so that the larynx could be invaded. The original wound was allowed to close.



Case. 1.

July 28th, under ether anesthesia, given on a gauze sponge over the tracheotomy-tube, with the patient in the Rose-Trendelenberg position with his head low over the edge of the table, a laryngotomy was done.

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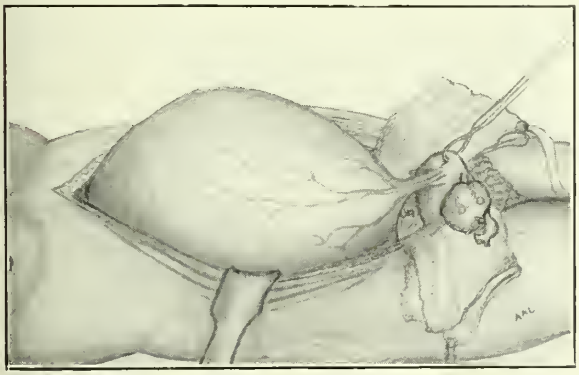
*Read before the Minnesota Academy of Medicine, May, 1911.

The thyroid cartilage was opened from the hyoid bone to the cricothyroid membrane. About at the middle of the incision, the cartilage was notched to insure proper alignment of the vocal cords when the voice-box was closed.

The thyroid wings were held apart with sharp retractors. The interior of the larynx was found completely filled with a large papillomatous growth springing from both vocal cords. The growth was removed with the finger and sharp spoon, after which its base and the vocal cords were curetted. Hemorrhage was profuse, hence the wisdom of the inverted position to prevent bleeding into the trachia. This bleeding was controlled by hot packs.



Case 2.

The cartilage was closed with No. 2 twenty-day Van Horn chromic gut, and the skin with silkworm gut, interrupted sutures. The tracheotomy-tube was left in position. Primary union occurred, and the tube was removed ten days later. The tracheal opening promptly closed. The boy was discharged ten days later, with the voice nearly normal, a slight huskiness alone being present.

The pathologist's report confirmed the diagnosis of papilloma.

The second case I wish to report is one of a large uterine fibroid with unusual pedicle.

Operation, March 24, 1910, S. J., aged 35, colored, married four years, no children, referred by Dr. Harry Ritchie, of St. Paul.

History.—The patient first noticed a mass in the right iliac region five years ago, or before her marriage. She never consulted a doctor until the day she was sent to the hospital. Her menstrual history was normal up to four months ago, when she began to flow for a week or ten days at a time, and menstruated every two weeks; hemoglobin, 85 per cent; leucocyte count, 8,000; urinary findings, normal.

Diagnosis.—Uterine fibroid tumor.

Operation.—Incision from the ensiform cartilage to the pubes was made. A tremendous non-nodulated, symmetrical fibroid tumor the size of a full-term gestation, presented itself, practically filling the abdominal cavity. This was dislocated and brought without the abdomen, when an interesting condition of affairs was revealed. The tumor, instead of being identified with the uterus, as are the great majority of this type, sprang from the uterine fundus, just below the insertion of the right tube. It was attached by a three-inch pedicle consisting of nothing but large blood-vessels. The tumor was removed by ligating the pedicle in two places with catgut and cutting between. The peritoneum was closed over the uterine end. A right ovarian cyst, the size of an orange, was removed, also a chronically inflamed appendix. A small uterine fibroid, the size of a large walnut, was enucleated from the anterior uterine wall. The abdominal wound was closed in tiers with catgut and several stay sutures of silkworm gut.

She made an uninterrupted recovery.

Large uterine fibroids, especially in the colored race, are rather common, but so large a tumor with such a pedicle and unusual attachment, is very rare.

Both of these cases occurred in my service at the University Hospital.

PROGRESS IN MEDICINE

Abstracts of medical reprints and articles on file in the library of the Department of Medicine, College of Medicine and Surgery, University of Minnesota.

UNDER THE CHARGE OF

Dr. Chas. Lyman Greene

Professor of Medicine and Chief of the Medical Clinic

These abstracts are read and discussed at the departmental meetings held monthly at the University Hospital.

OLIVER-SHARPEY LECTURES ON HEART FAILURE

James Mackenzie, M. D., LL. D.

LECTURE I

Mackenzie first advocates the undertaking of research by the general practitioner, referring modestly to his own work as proving its practicability. He states that no text-book bears evidence of an adequate conception of the present-day aspect of heart-failure and the significance of its symptoms, attributing this failing to a lack of long-continued, systematic observation of individual cases.

Deploring the present tendency to magnify the importance of auscultatory phenomena and the limited lesion, he also protests against the continuance of the teaching of back pressure as a basic factor in the production of heart-failure. He seems to believe that heart murmurs are greatly overestimated with respect to their seriousness, and that too much importance is ascribed to valvular lesions and cardiac irregularities, saying in regard to murmurs, "The profession has been so impressed with the association of murmurs with heart-failure that a great majority of heart diseases are distinguished by the noise the heart makes, although these noises may have little or no connection with the heart-failure."

This radical statement is followed by a warm protest against the indiscriminate rejection of candidates for life insurance or army medical service, because of the existing heart murmurs or irregularities. As proof of the harmlessness of the "functional murmur" he makes the astonishing statement that medical literature affords no instances of reported deaths in such cases. [It would seem that every physician of experience must have seen cardiac death occur in cases carrying what was supposed to be functional murmurs, and the fact that such have not been reported in literature, may depend chiefly upon the fact that such an occurrence is not sufficiently striking to be thought worthy.]

He insists that neither regular nor perfect valves are essential to normal and sufficient heart-action, making, in support of the latter statement, the amazing assertion that mitral disease may exist for fifty years "with absolutely no crippling of the heart in its work." [All medical men of experience will grant the time-duration, but insurance statistics would prevent any rigid acceptance of the last statement of this distinguished author.]

Referring to the arrhythmias of young people, he states that, inasmuch as these are often abolished by fever, effort, or excitement, he has come to regard them, "within certain limits," as a positive evidence of a healthy heart. Intermittencies he interprets as results of premature contractions of the heart-chambers, and would assign to them little importance, even in middle age.

With regard to the accepted theory of back-pressure effects in valvular disease, he again declares that it is overestimated, and is never the essential cause of heart failure. The true cause he rightly believes to be the degeneration of the heart muscle with resulting impaired contractile efficiency, often, but not invariably, associated with the embarrassment due to existing valvular defects.

He credits auricular fibrillation with the immediate responsibility for the onset of severe heart failure in 70 per cent of all cases showing dropsy and dyspnea, but also states that the condition may be present in cardiac inefficiency of any grade.

Auricular fibrillation is associated with irregularity of the type known formerly as *pulsus irregularis perpetuus* and *delirium cordis*, and by Mackenzie, originally, as paralysis of the auricle, and, later, as "nodal rhythm."

Other observers have established the fact, now accepted by the author, that such a pulse is due to fibrillary auricular contractions which are insufficient to send all impulses through the auriculoventricular bundle, thus producing irregular, unequal beats of varying rate.

[This first lecture is interesting and readable, and, if carefully read and considered, gives insufficient ground for the sensational press reports which followed its delivery and were no doubt due to a failure of Dr. Mackenzie to properly qualify statements which, even to medical men, sound extreme.

One cannot but feel that the author's views are a trifle biased by too great a concentration upon one method and upon certain phases of the cardiac activities; nor can he fail to resent somewhat the unwarranted assumptions which the lecture contains respecting the antiquity of the views of present-day practitioners. Few students, in this country at least, leave college with the idea that a valvular lesion, itself, is more important than the state of the cardiac muscle in relation to heart failure.

Finally, the actuary and medical director will certainly, and with right, question seriously certain of Dr. Mackenzie's more radical statements in so far as they bear upon the question of prognosis and mortality.] C. L. Greene.

UEBER DEN WERT DER KOMBINATION VON RÖNTGENSTRAHLEN UND HOCHFREQUENZBEHANDLUNG BEI MALIGNEN TUMOREN

Von Dr. R. Werner and Dr. A. Caan

Münchener medizinischen Wochenschrift, No. 36, 1911

Shortly after the first experiment as to the effect of the Röntgen ray upon pathological tissue, the necessity of artificially increasing the difference in sensitiveness of diseased foci and their normal surroundings to the ray became apparent. This was attempted in two ways: by increasing the susceptibility of the diseased tissue to the ray and by improving the resistance of normal surrounding structure. In the past year several methods of accomplishing these ends have been advanced.

Procedures leading to an increase of susceptibility are classified as chemical, photochemical, thermal, and mechanical hyperemia methods.

Chemical sensitization is based upon the idea of a chemical action resembling that of the *x*-ray. Such an action is produced by a lecithen compound, especially cholin. The photochemical action is obtained by the use of a fluorescent substance.

The thermal action rested upon the principle that the frozen or beaded-cell complex is more sensitive to the *x*-ray. Experimental studies along this line have been carried on by Werner by means of ethyl-chloride and ether sprays, and more recently by von Bering, who used thermopenetration.

The general principle of these methods is that of a stimulation to cell-metabolism, which is known to increase the effect of the *x*-ray.

Werner pointed out in 1903 that in his work with radium it was possible to cause a decided desensitization of certain tissues, especially the skin, by producing passive congestion to the point of marked edema whereby metabolism is greatly reduced. Upon the same foundation rest the experiments of Schwartz, Schmidt, Christen and others, who sought to desensitize the skin by producing a local anemia through compression.

The application of the *x*-ray in combination with high-frequency treatment is to be classed among the anemia-producing methods.

This is the method employed by the author. The diseased part is first exposed to the influence of the electric spark from the D'Arsonval apparatus for about five minutes, after which the Röntgen ray is applied immediately, a half to a full dose being administered.

Altogether, 72 patients with malignant tumors were treated in this manner. There were 28 cases of recurrent mamillary carcinomata; 16 with gastric carcinomata, which had been previously brought to the surface through the abdominal wound, as had also 1 cecum and 1 rectum carcinoma; 1 lupus carcinoma; 2 other skin carcinomata; 1 branchiogenous carcinoma; 2 cancers of the esophagus; 1 each of the lip, orbit, and uterus; 8 sarcomata, and 3 lymph sarcomata.

Results varied according to whether or not it was necessary to expose the tumor by operative procedure. If not, the only advantage noted in most cases was that a large dose of Röntgen ray could be administered before erythema developed (from 5 to 8 H.). A noticeable increase in the effect of the Röntgen ray upon the tumor itself was usually not observed. Only seven times did there appear a more marked retrogression than had followed the earlier Röntgen treatments without d'Arsonvalization.

Observations were more fruitful in carcinomata of the stomach and intestine. Here the difference between the combined and the simple radiological treatment was marked. The chief advantage lies in the rapidity of the recrudescence of the tumor nodules. A shrinking process takes place, followed in many instances by a keliod-like substance, and there is less tendency to softening and necrosis of tissues.

It may thus be said that high-frequency treatment has a favorable influence upon the action of the *x*-ray both in a qualitative and quantitative sense. However, great advantages, as far as results are concerned, cannot be claimed for the method.

Therapeutic experiment in sensitization by freezing with ethyl-chloride spray, the injection of fluorescent substances, or suction-hyperemia produces very similar results as does the use of strong high-frequency currents.

Of much greater merit is doubtless the surgical exposure of the tumor-mass to the action of the ray. At present, sensitization and desensitization of tissues must be looked upon only as adjuncts of limited value.

F. S. BISSELL.

AORTIC REGURGITATION

Kerr: *American Journal of the Medical Sciences,* October, 1911

Kerr discusses the mechanical factors active in this lesion in their relation to physical signs and secondary changes.

He reviews the following inconstant factors influencing the *momentum of the regurgitant stream*:

(a) Gravity, dependent on the patient's position.

(b) Recoil of the aorta, which is dependent upon wall elasticity, the condition of the peripheral vessels, and the initial force and volume of the regurgitant stream.

(c) The evanescent ventricular suction at the beginning of diastole due merely to myocardial recoil or relaxation. No vacuum, of course, existing.

(d) The size of the leak.

The transmission of the murmur he believes is due to the direction of the regurgitant stream modified by the nature of the lesion, the force of the current, the anatomic structure of the heart-wall, and the intermingling of the auriculoventricular and regurgitant streams.

He rightly emphasizes the fact that in most cases the maximum intensity is reached at the 3d left interspace, rather than the right 2d, and that it may be found at the right 3d interspace or the apex.

He further asserts that the aortic diastolic murmur may shift its maximum point from day to day and occasionally be audible only at the apex.

Experimentally, injuries of the left cusp tend to deflect the current to the sternum, injuries of the posterior cusp to the apex.

Actually, the leak is such as to produce an irregular distribution of the stream. He would ascribe many of the changes of seat to variations in the aortic pressure and stretching of the segment.

Attention is called to the fact that the common area of maximum intensity represents the exact position of the thinned upper boundary of the left ventricle at the upper part of the septum, and, further, that these murmurs frequently follow the septal line from a point behind the left half of the sternum at the third cartilage, to another just within the apex.

He ascribes much importance to the intermingling of blood-streams within the ventricle, while believing that no actual empty space ever exists in that cavity.

The vibrations produced may affect the mitral, the chordæ tendinæ, or the papillary muscles, and so affect the transmission of any sound thus produced.

In dealing with compensatory hypertrophy he emphasizes the fact that a proper coronary blood-supply is indispensable, and that this must be deficient in aortic regurgitation in arteriosclerotic cases and in such as keep the heart under severe strain when its strength should be conserved.

He insists that the dilatation of the left auricle and ventricle occurs simultaneously in both chambers and is directly due to overfilling.

The rapidity with which decompensation progresses in terminal cases he attributes to coronary inefficiency induced by the increased blood-demands of the enlarged chambers and the subnormal flow associated with the non-support of the aortic blood-column.

He closes by pointing out the necessity of maintaining proper arterial tension in both mitral and aortic disease, and the added obstacles interposed in aortic cases to a free coronary circulation.

J. S. Gilfillan.

BLOOD-PRESSURE

Goodman

American Journal of the American Sciences, Sept., 1911

Goodman devotes his paper to a consideration of Korotkow's method of determining blood-pressure. This demands auscultation of a sequence of sounds audible in the brachial at the bend of the elbow when compression by the sphygmomanometer cuff is gradually released.

The auscultatory cycle consists of—

(a) A clean-cut, snappy tone (1st phase).

(b) A series of murmurs (2d phase).

(c) Disappearance of murmurs and reappearance of a tone less clear than the first (3d phase).

(d) Appearance of distinct dulling of the 3d phase (4th phase).

This in turn gives place to silence (5th phase).

The author especially emphasizes the importance of tonal arrhythmias, the absence of the 5th phase in aortic insufficiency, and the value of a knowledge of the ratio of phase-length to pulse-pressure.

He has made a careful study of phase-values based upon a normal reading of 130 mm. systolic and 85 mm. diastolic pressure.

The drop of 45 mm. represents pulse-pressure and is thus divided:

1st phase—14 mm.
2d phase—20 mm.
3d phase— 5 mm.
4th phase— 6 mm.

Expressed in percentages of pulse-pressure this would yield:

1st phase—31.1 per cent.
2d phase—44.4 per cent.
3d phase—11.1 per cent.
4th phase—13.3 per cent.

Goodman's interpretation of the phases in the cycle are as follows.

1st phase measures the fall in pressure necessary to establish a flow past the point of cuff-constriction with sufficient velocity to produce a murmur. An increase or decrease in the percentage of this phase is important.

2d phase (murmurs) is peculiarly indicative of cardiac efficiency sufficient to produce sounds of distinct prolongation.

3d phase (2d tone interval). The distinction and intensity of the tone varies with heart strength and the condition of the arterial wall. The greater the ventricular strength and the more sclerotic the vessel, the clearer is the tone.

4th phase (dulling of the 3d phase tone) may be produced either by a resilient vessel receiving a normal pulse-shock or by a sclerotic vessel receiving a weakened pulse-shock.

Increases in the 2d and 3d phases he interprets as indicating cardiac strength and circulatory efficiency.

Increases in the 1st and 4th phases he considers indicative of cardiac weakness.

He terms the sum of the 2d and 3d phases the unit of cardiac strength, and recommends that this be compared with the sum of the 1st and 4th phases to determine which of the two elements predominates.

He obtained little from a study of the length of the individual phase, save that the 4th phase is persistent in aortic regurgitation.

In progressive decompensation there is a steady encroachment of the unit of weakness (we presume the author would permit this term), i.e., the sum of the 1st and 4th phases upon the "unit of strength," i.e., the sum of the 2d and 3d phases.

Encroachment of the 4th upon the 3d and of the 1st upon the 2d are readily noted in a failing heart.

Rhythmic variations in tonal intensity are accepted as indicating myocardial weakness and are especially evident in the upper end of the sequence. They are first noted as a delay in the complete institution of the tonal rhythm of the 1st phase or by a temporary alternation of tone and murmurs in the 2d phase.

The author states that this indication of cardiac weakness antedates any change recognizable by palpation of the pulse or auscultation of the heart.

Improvement is indicated by the progressive change for the better in these tonal arrhythmias. It may be noted, however, that advanced myocardial degeneration is associated with constancy of pressure-readings and phase-intervals, tonal arrhythmias, and not infrequently the absence of one phase or of all.

In cases of disturbed cardiac rhythm which were apparently functional, the pressure-readings were quite the reverse. They showed varying pressures and phase-periods, but no tonal arrhythmia.

Profound anemia (pernicious) showed tonal arrhythmia, but unusual clearness and loudness of tone. In one the 2d phase was entirely lacking.

In a case of polycythemia, no phases were obtainable.

[The paper is interesting and suggests an ample field for careful and long-continued observation.]

J. E. Hynes.

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March 1, 1912

A BRAIN TUMOR LOCATED BY THE X RAYS

The popular idea that a brain tumor can be located by means of the *x* rays is confirmed by the report of a case in the *American Journal of the Medical Sciences* by Dr. James Hendrie Lloyd. This tumor, however, was a psammoma (sand tumor) that had undergone calcareous changes and also was of unusual size. In all probability this is the one kind of tumor that would give a reasonably clear shadow. In most other varieties no shadow or, at best, only a very faint and unreliable one may sometimes be obtained. The uninformed layman believes, and, unfortunately, is occasionally told by the physician, and always by the charlatan, that the *x* rays will reveal any sort of disease or growth. This idea has grown so steadily in the public mind that unscrupulous men have taken advantage of the ignorant and profited thereby.

In the case reported by Dr. Lloyd, the symptoms were not very convincing. They were stiffness in the neck, very little, if any, headache, occasional vomiting, a peculiar gait, tending toward the right, and a rotation of the head in the same direction, vision defective, with moderate choked disk, and no impairment of hearing. A preliminary operation, following the lines of the skiagram, showed a cyst in the right temporal lobe and at the bottom a hard bony mass. No attempt was made to remove the growth at the first operation, as it was deeply attached, and the observers hoped that the growth would follow the line of least resistance and appear later at or near the opening.

Most of the symptoms disappeared after the first operation, except a slight astereognosis, a slight Babinski, and an exaggerated knee-jerk in the left leg. Fourteen weeks later the old symptoms began to return, and a second operation was performed. The cyst had refilled and was emptied, and the bony mass, like a nest of gallstones, was removed. The patient, however, developed an intercurrent uremia and died on the eighth day.

The case was of peculiar interest, not only on account of its rarity, but from the clear shadow in the skiagram, due to its hard, bony nature.

TRACHOMA ON THE INDIAN RESERVATIONS

The Congressional investigating committee which has been in session in Minneapolis and Detroit, Minnesota, has unearthed the startling fact that 2,315 of 3,773 Indians on the White Earth Reservation, examined in September, 1911, were suffering from trachoma, that 128 were blind, or nearly so, and that 620 were infected with tuberculosis. These figures were presented by Dr. Folk Richardson, the physician in charge. Conditions among the Mille Lacs band and on the Red Lake and Leech Lake Reservations were even worse.

These various reservations are under the control and supervision of the government, and are not under the supervision of the State Board of Health.

It has been said that these diseases were reported to the governmental headquarters three years ago, but Congress did not see the necessity of providing efficient relief. This beastly state of affairs should be eliminated at once to prevent the further spread of trachoma and tuberculosis, and the information concerning its existence should be a powerful argument toward the establishment of a department of health at Washington.

Should such an epidemic be found in any state over which a board of health had jurisdiction, with the means and moneys to suppress it, and had failed to do so, one can readily imagine the howl of criticism that would go up from physicians and laymen. When will Congress learn to heed the teaching of medical men rather than be influenced by ignorant or indifferent people who profit by the ills of mankind?

A board of health endowed with police powers could easily relieve a situation such as has been found on the reservations within a year. In all probability the maximum relief could be obtained within a few weeks, and most of the cases benefited or cured within a reasonable time.

Granting that the reports may be exaggerated, the total number of victims is disproportionately large in comparison with the Indian population. The establishment of a hospital on each reservation, as recommended by Major Howard in 1908, should be no longer delayed, but as governments move slowly and through mazes of red tape, it will be a long time before the reservation sufferers can expect adequate treatment. The full-bloods, the ignorant Indians, are the greatest sufferers, and doubtless the throwing open of the reservation through the Clapp bill is more or less responsible for the present state of affairs. Many of the Indians sold their birthright for small sums of money to land and timber speculators, and squandered it in drink and thus became poverty-stricken. Large sections of land are tied up in litigation, titles are confused in the tangle, and this has added to the general poverty of the full-bloods.

In spite of the fact that residents and business men in the vicinity are unconcerned and uninterested in the welfare of Indians, the government is bound by humanitarian principles to guard and protect the health of its ignorant wards. The mixed-blood Indians are progressive, and maybe they have become financially benefited by the ignorance of their ancestors; at all events they are not enthusiastic over the improvement of the health of the partial progenitors.

The opportunity to test the value of the laws of sanitation and personal hygiene on the reservations, is too good to pass, and if the government will advance the means and endow the Minnesota State Board of Health with authority, workers can be put in the field at once. Medical inspectors and a few soldiers would stifle the epidemic and, incidentally, make the Indians self-supporting.

SHALL WE TRAVEL TOGETHER?

The American Medical Association will meet this year in June at Atlantic City. As a large number of men, many taking their wives, will attend the meeting from the Northwest, and as most of them must pass through the Twin Cities, an excellent opportunity is afforded for a social day or two on the cars between here and Atlantic City. Of course, such parties do not form spontaneously: they must be formed upon a plan, and information of the plan must be afforded, and afforded in advance, to all who may wish to go.

The Journal-Lancet is glad to know that the plan has been made, and that it promises to be admirable and serviceable in all its details. A committee, whose names are given below, has been formed, and they will pass upon and determine all the essential features of the plan, such as the hour of departure, etc.

The route selected is by way of the Milwaukee and Pennsylvania roads, which, as everybody knows, is the choicest of all the routes between here and Atlantic City. The Milwaukee road will furnish the party special cars, which will be for its exclusive use; and the Pennsylvania road will also provide special cars to be made a part of one of the special physicians' trains between Chicago and Atlantic City.

It is needless to say that these roads will give the party the best service, in every respect, at their command, and this means the best known to railroads.

The rates will be such as the A. M. A. can obtain from all roads; and they will be announced, together with other details, in these columns as soon as obtained.

The meeting at Atlantic City is well worth attending, and the opportunity offered the Northwestern men of traveling together gives increased value and pleasure to the trip.

The committee is composed of the following: Drs. Frank C. Todd, H. L. Staples, and W. A. Jones, Minneapolis; Drs. Burnside Foster and W. D. Kelly, St. Paul; Dr. C. A. Stewart, Duluth; Dr. H. J. Rowe, Casselton, N. D.; Dr. R. D. Alway, Aberdeen, S. D.

THE PRACTICE OF OSTEOPATHY IS THE PRACTICE OF MEDICINE

The Supreme Court of the United States upheld, in a decision handed down a few days ago, the right of a State to pass legislation classifying the practice of osteopathy as the practice of medicine. The case went to the Supreme Court from Texas, whose legislature had made such a classification. Of course the decision is a severe blow, not only to the osteopaths, but to all classes of healers who have taken short-cuts into the field of medicine, and it now remains for the people of each State to decide what educational qualifications they shall demand from men and women who "feel called upon" to practice medicine for fees.

To us the one surprising thing in this litigation is, that any high-grade lawyer would hope to get any other decision from the Supreme Court. If a State legislature has no right to determine what is, and what is not, "the practice of medicine," it would be difficult to guess upon what subject it has the right to legislate.

REPORTS OF SOCIETIES

THE MINNESOTA ACADEMY OF MEDICINE.

The Academy of Medicine met at the Town and Country Club, Wednesday, February 7, 1912.

Dr. E. Y. Chilton presented clinically a case of congenital cyst of the neck in a child three months old. He stated that the child weighed six and one-half pounds at birth and seems to be thriving very well in spite of the enormous enlargement on the right side of the neck. Shortly after birth he had thrust a hypodermic needle into the enlargement in five or six places, but did not succeed in getting any fluid whatever.

Dr. A. Schwyzer expressed the belief that it is a case of congenital cystic hygroma of the neck. The tendency is for them to grow larger for a few months and then cease growing. As to operating on it, he stated that he operated on a similar case at one time with unfavorable results. It were better therefore to puncture and draw off the fluid if found, and then inject something like a weak iodine solution to cause absorption.

Dr. Carlaw cited a case in a babe two years old who had a similar growth on the back of the neck and nearly as large as the child's head. On tapping he obtained but little fluid. He operated a month ago, and the removal had to be done by pure dissection. The child recovered.

Dr. Mann stated that he had examined Dr. Chilton's case earlier in the day, and that at first he thought it a cystic hygroma, but that, on closer inspection, he believed it to be a lymphangioma of the neck. As for treatment, he agreed that so long as it is not growing it will be better to wait until the child is older and stronger and has more vitality before operating.

Dr. J. Warren Little then read a paper entitled "The Bacillus Aërogenes Capsulatus." The paper was discussed by Dr. J. Clark Stewart.

Dr. Arnold Schwyzer read a paper entitled "Pericecal Herniæ."

A. W. Dunning, M. D., Secretary.

BLUE EARTH COUNTY SOCIETY

At the meeting of the Society held at Mankato January 29th, the following resolution was adopted:

First, no applicant for membership in the Blue Earth County Medical Society shall be eligible to membership until he has taken a solemn pledge that he will not, while a member of said society, either give, receive, ask, or offer any commission or percentage, either directly or indirectly or indirectly, for business referred, shall use all honorable means to eliminate this evil practice from the profession.

Second, that the giving or receiving, asking, or offering a commission or percentage, either directly or indirectly for business referred, shall be a sufficient cause for expelling from this society any member who shall be guilty of the same.

Provided, that these resolutions shall not be construed adversely to the attending physician who accompanies a patient to a surgeon or other specialist receiving a fair compensation for his counsel or assistance, either or both; but he must receive it direct from the patient, or, if not direct, the patient must understand how much the attending physician receives and for what services.

G. A. Dahl, M. D., Secretary.

NEWS ITEMS

Dr. C. E. Durkee has located at Dwight, N. D.

Dr. L. C. Smith, formerly of Dickinson, N. D., has located at Belfield, N. D.

Dr. Robert Patterson, of Barnesville, died on Feb. 16th at Biloxi, Miss., at the age of 61 years.

Dr. Glenn G. Haight, a 1910 graduate of the Baltimore Medical College, has located at Audobon.

Dr. W. T. Lindsay, of Chamberlain, S. D., has decided to return to Madison, Wis., where he formerly practiced.

The graduate nurses of North Dakota will hold a meeting next month in Grand Forks and organize a state association.

Dr. Wm. P. Lee and his wife, of Northfield, have returned from a trip of several weeks through the South and to Cuba.

Dr. Cora Smith Eaton, who formerly practiced in Minneapolis for a number of years, was married last month in Seattle, Wash.

Dr. C. C. Pratt, of Minneapolis, has moved to Mankato and become a member of the staff of the Immanuel Hospital of that city.

Dr. K. Holgrem, of Bismarck, N. D., has become associated with Drs. Shields & Sasse in their hospital work at Lidgerwood, N. D.

Dr. F. W. Thornhill, of Spring Valley, died last month at the age of 68 years. Dr. Thornhill had practiced at that place for forty years.

The Academy of Medicine of Sioux Falls, S. D., has disbanded, as it was felt by the members that their efforts should be given to the District Society.

Dr. David A. Herron, of Platte, S. D., has purchased the practice of Dr. J. A. Prim, of Comfrey, Minn. Dr. Prim has moved to Minneapolis.

Dr. J. M. Ekrem, of Mobridge, S. D., is home from Chicago, where he has been doing postgraduate work. Dr. Ekrem expects to locate elsewhere.

The Cloquet Hospital building was destroyed by fire last month. Drs. Dolan & Fleming who conducted the hospital, say they will rebuild at once, and will erect a fire-proof structure.

The opening of the new Naeve Hospital at Albert Lea last month drew a very large crowd, estimated at 1,500, which gave much encouragement to the managers. The institution is a credit to Albert Lea.

Governor Eberhart has appointed the following as members of the State Board of Medical Examiners: Dr. Thos. McDavitt, St. Paul; Dr. John E. Campbell, South St. Paul; and Dr. A. G. Moffatt, Howard Lake.

Dr. W. R. Claybaugh, of Rolette, N. D., who has been in Montana for over a year, will resume his practice at Rolette, and Dr. F. V. Lyman, who has been in charge of Dr. Claybaugh's practice, will move to New York.

Dr. D. D. Turnacliffe, a recent graduate of the State University, has accepted a position with the street railway company of the Twin Cities. The employment of a physician is a new undertaking of the street railway company, but it is to be permanent.

Dr. W. B. Torgerson, of Greenbush, has sold his practice to Dr. E. M. Howg, of Sisseton, S. D., and will retire from practice. Dr. Howg is a graduate of Northwestern, Chicago, and was interne in the Swedish Hospital of Minneapolis for one year.

Drs. Beaudoux & Wheeler, of St. Paul, have taken charge of the White Bear Hospital and Sanitarium, and will conduct it to meet the needs of their practice under the name of the Minnesota Eye, Ear, Nose, and Throat Hospital. It is the first hospital established in the state for the exclusive use of eye, ear, nose, and throat patients.

Dr. F. L. Watkins, who has been connected with the U. S. Census Bureau for a number of years, has been engaged by the Minnesota State Board of Health as Chief of the Division of Statistics. Dr. Watkins will, no doubt, be of great value to the Board in looking after the vital statistics of the State, and especially in inducing local officials to make prompt and proper returns. His work will be largely outside of the Twin Cities.

ASSISTANT WANTED

A physican in general practice in a Minnesota village wants an assistant. A good opening for the right man. Address S. K., care of this office.

PRACTICE FOR SALE

I will transfer my practice to the purchaser of my residence listed at less than cost. Location, good town 25 miles from Minneapolis. Catholic preferred. Address G. D., care of this office.

POSITION WANTED

I desire to assist a surgeon or physician in St. Paul a part of the day. Am practicing in the city and can give best of references. Am a member of the State Association. Address M. S. M., care of this paper.

PRACTICE FOR SALE

An unopposed $4,000 practice in a town of 600 in southern Minnesota. Nearest competition, 9 miles. Best farming community in the State. Am going to specialize. Possession given May 1st. Price, $600; $300 cash, and note for balance. Address S. A., care of this office.

PRACTICE FOR SALE

Good man wanted to take unopposed practice bringing $3,500 to $4,000, in town of 500 in central Minnesota; established nine years. Will sell if wanted. No cash needed if references are good. Going to take post-graduate work. Address H. M., care of this office.

PART OF MINNEAPOLIS OFFICE FOR RENT

One-half of my suite of furnished offices (four rooms) in Reid Corner (9th and Nicollet) is offered for rent. Address Dr. W. J. Marcley, Reid Corner, Minneapolis.

Doctor: If you want practical postgraduate work during fine season in the delightful city, write for particulars. New Orleans Polyclinic, P. O. Box 797, Postgraduate Medical Dept., Tulane University of La.

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF MINNESOTA FOR THE MONTH OF NOVEMBER, 1911

REPORTED FROM 82 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES.	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia
Ada	1,253	1,432	1													
Albert Lea	4,500	6,192	4		1	1										
Alexandria	2,681	3,001	1			1										
Anoka	3,769	3,972	3		1											
Austin	5,474	6,960	8	1											2	
Barnesville	1,326	1,353	1													
Bemidji	2,183	5.099	11	1							1		2			
Benson	1,525	1,677	3			1										
Blue Earth	2,900	2,319	3												2	
Brainerd	7,524	8,526	8	1		1					1				2	
Breckenridge	1,282	1,840	2										1			
Canby	1,100	1,528	0													
Cannon Falls	1,239	1,385	1													
Chaska	2,165	2,050	1													
Chatfield	1,426	1,226	1		1											
Cloquet	3,074	7,031	6	1		1							1	1		
Crookston	5,359	7,559	4	2			1									
Detroit	2,060	2,807	3			2										
Duluth	52,968	78,466	71	5	1	12	1					1	3	4	3	
East Grand Forks	2,077	2,533	3													
Ely	3,572	3,572	5	3		1										
Eveleth	2,752	7,036	4			1								1		
Faribault	7,868	9,001	1													
Fairmont	3,440	2,958	1										1			
Fergus Falls	6,072	6,887	10										1			
Glencoe	1,788	1,788	1													
Granite Falls	1,454	1,454	2													
Hastings	3,811	3,983	5													
Hutchinson	2,495	2,368	2	1												
International Falls		1,487	6										3			
Jordan	1,270	1,151	0													
Lake City	3,142	3,142	3													
Le Sueur	1,937	1,755	1													
Litchfield	2,280	2,333	2													
Little Falls	5,774	6,078	5			1								1	1	
Luverne	2,223	2,540	0													
Madison	1,336	1,811	2			1										
Mankato	10,559	10,365	13	1		2									1	
Marshall	2,088	2,152	2													
Melrose	2.591	2,591	0													
Minneapolis	202,718	301,408	291	39	4	30	6	1					12	9	24	
Montgomery	979	1,267	0													
Montevideo	2,146	3.056	4												1	
Moorhead	3,730	4,840	6	1		1										
Morris	1,934	1,685	1				1									
New Prague	1.228	1,554	1													
New Ulm	5,403	5,648	3			1										
Northfield	3,210	3,215	6	2											2	
Ortonville	1,247	1,774	0													
Owatonna	5,561	5,658	6			1								1		
Pipestone	2,536	2,475	1											1		
Red Lake Falls	1,666	1,666	1									1				
Red Wing	7,525	9.048	3										1			
Redwood Falls	1,661	1,666	0													
Renville	1,075	1,182	1													
Rochester	6,843	7,844	22	2		1	3	1			1				6	
Rushford	1,100	1,011	2													
St. Charles	1,304	1,159	0													
St. Cloud	8.663	10,600	8			1									1	
St. James	2.102	2,102	3										1			
St. Paul	163.632	214.744	163	19	3	13	3			1	1	1	6	6	12	4
St. Peter	4,302	4,176	3	1												
Sauk Centre	2,154	2,154	0													
Shakopee	2,046	2,302	0													
Sleepy Eye	2,046	2,247	2												1	
South St. Paul	2,322	4,510	0													
Staples	1,504	2,558	0													
Stillwater	12,318	10,198	6		1											
Thief River Falls	1,819	3,174	0													
Tower	1,111	1,111	1												1	
Tracy	1,911	1,826	1													
Two Harbors	3,278	4,990	5										1	1		
Virginia	2,962	10,473	12	2		1									1	
Wabasha	2,622	2,622	1													
Warren	1,276	1,613	0													
Waseca	3.103	3,054	4												1	
Waterville	1,260	1,273	0													
West St. Paul	1,830	2,660	2											1		
Willmar	3,409	4,135	5	1							1		1			
Winona	19,714	18,583	21		1	3		1							1	
Winthrop	813	1,043	1			1										
Worthington	2,386	2,385	2													

REPORTED FROM 54 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia
Adrian	1,258	1,112	0													
Aitkin	1,719	1,638	0													
Akeley			0													
Appleton	1,184	1,221	1													
Belle Plaine	1,121	1,204	0													
Biwabik		1,690	2			1										
Bovey		1,377	3			2										
Browns Valley	721	1,058	0													
Buffalo	1,040	1,227	1	1												
Caledonia	1,175	1,372	3		1											
Cass Lake	546	2,011	2													
Chisholm		7,684	6			4								1		
Coleraine		1,613	0													
Dawson	962	1,318	1													
Delano	967	1,031	0													
Farmington	733	1,024	1													
Fosston	864	1,055	1													
Frazee	1,000	1,645	2												1	
Glenwood	1,116	2,161	0													
Grand Rapids	1,428	2,239	5	1												
Hibbing	2,481	8,832	10			1								1		
Jackson	1,756	1,907	2												1	
Janesville	1,254	1,173	1													
Kenyon	1,202	1,237	1													
Lake Crystal	1,215	1,038	*													
Long Prairie	1,385	1,250	3													1
Madelia	1,272	1,273	0													
Milaca	1,204	1,102	1													
Mountain Lake	959	1,081	2													
Nashwauk		2,080	2											1		
North Mankato	939	1,279	1												1	
North St. Paul	1,110	1,404	0													
Osakis	917	1,013	1												1	
Park Rapids	1,313	1,850	0													
Pelican Rapids	1,033	1,019	2													
Perham	1,182	1,376	3			1										1
Pine City	993	1,258	1				1									
Plainview	1,038	1,175	0													
Preston	1,278	1,193	1													
Princeton	1,319	1,555	1													
St. Louis Park	1,325	1,743	2	1										1		
Sandstone	1,189	1,818	0													
Sauk Rapids	1,391	1,745	2												1	
South Stillwater	1,422	1,343	0													
Springfield	1,511	1,482	2	1												
Spring Valley	1,770	1,817	2													
Wadena	1,520	1,820	1													
Wells	2,017	1,755	1													
West Minneapolis	2,250	3,022	3												1	
Wheaton	1,132	1,300	0													
White Bear Lake	1,288	1,505	4				1								1	
Windom	1,944	1,749	0													
Winnebago City	1,816	2,555	*													
Zumbrota	1,119	1,138	1													
STATE INSTITUTIONS																
Fergus Falls, Hospital for Insane			10	4		1										
Rochester, Hospital for Insane			12			1							1		1	
St. Peter, Hospital for Insane			6			1										
Anoka, Asylum			2	1												
Hastings, Asylum			2	2												
Faribault, School for Deaf																
Faribault, School for Blind																
Faribault, School for Feeble Minded			4	4												
Owatonna, School for Dependents																
Stillwater, State Prison			2													
St. Cloud, State Reformatory			1													
Red Wing, State Training School																
Minneapolis, Soldiers' Home			5													
OTHER PARTS OF STATE			611	53	9	50	2	3			7	2	16	31	47	4
Total for state			1521	151	23	140	19	6	0	1	12	5	51	61	117	10

*No report received. **Registrar** not doing his duty.

160 stillbirths and premature births not included in above totals.

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THE USE AND ABUSE OF CARBOHYDRATES IN INFANT-FEEDING*

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CHICAGO

I. INTRODUCTION.

Previous to the last decade, in America, as in Europe, there was a generally accepted hypothesis that the constituent of the food which was most harmful to the bottle-fed infant was the casein of cow's milk. Starch was not given at all, or only in very small quantities, in the first year of life, and milk sugar was regarded as practically harmless, even in large amounts.

Through the efforts of certain German pediatricians to obtain more scientific standards by which to judge of the proper food for infants, it was discovered that the casein of cow's milk was well taken care of by the infant's alimentary canal, and that the greater proportion of the so-called casein curds in the infant's stools were not casein, but fat masses. Czerny and his pupils were the first to advance the opinion that the casein of cow's milk in the amounts usually given was in no way harmful and could not be regarded as the source of nutritional disturbance. That this was not a premature conclusion is shown by the fact that all subsequent scientific findings have tended to strengthen this position. As we shall see later, this was the first step towards bringing to our notice the action of the carbohydrates, since it removed the obstacle of an erroneous hypothesis that had previously occupied the whole field. From this time on the various constituents of infant's food-mixtures began to be considered on their individual merits, and the outcome has been a scientific investigation which, in scope and result, can be compared only to the early bacterial era of medicine.

The carbohydrates have occupied, and still occupy, a rather unique position in the infant's dietary, since, with the exception of milk sugar, none of them exist in the natural nourishment (breast milk). Is it necessary or, if not necessary, advantageous to add carbohydrates to milk mixtures? And, if so, should they be added in any form other than milk sugar? In all systematic efforts to arrive at a proper artificial food mixture for infants there has never been an attempt to exclude entirely the addition of carbohydrates, so that it will be safe to say that it is a generally accepted fact that carbohydrates, in some form, should be given. In most instances this has been milk sugar. Does clinical experience justify the use of milk sugar so freely as has been the custom in the past, or should we substitute some other form of carbohydrate in its place? This is perhaps the most important question to be answered today. To do this we must go more deeply into the scientific and clinical data at our disposal and attempt to arrive at a logical conclusion.

II. THE CHEMICAL CHARACTERISTICS OF THE CARBOHYDRATES

Considered chemically, the carbohydrates are normal chains of C atoms, containing H and O in the proportion of water. When any polysaccharid

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*Read before the Hennepin County Medical Society at Minneapolis, February 20, 1912.

(starch) is broken up into its less complex derivatives, the first stages are nearly always the result of hydrolysis. By hydrolysis the carbohydrate molecule is split only to a certain point. To split it to its final components, oxidative processes are necessary. The nuclei comprising the carbohydrate molecule are not so distinctive as are those of the protein molecule; in fact, the end-products are not distinctive at all, so that, under normal conditions, it is impossible to estimate the use made of the carbohydrates in the human organism. This renders the estimate of their food value especially difficult.

By hydrolysis the starches are split into dextrin and the disaccharids, and these, in turn, and by the same process, into the monosaccharids. The monosaccharids may be still further decomposed by oxidative processes, which give the fatty acids, substances which are assuming more and more importance as the investigation into the real cause of diarrheas in infants becomes more exhaustive.

In regard to the difference in fermentation of the various starches, some recent researches of Klotz[1] are of much interest and clinical value. The experiments were to test the action of certain intestinal bacteria upon the digestion-products of wheat and barley flour. He found that, other things being equal, the acid production was greater with barley flour than with wheat flour. The barley is more easily digested by the enzymes to maltose and dextrose, which are, in turn, quickly attacked by the bacteria. In experiments carried on to test the effect of inorganic salts on the bacterial decomposition of these starches, he was able to determine no definite action by any of the salts used. On the other hand, the addition of lactose increased the acid fermentation, while dextrose and saccharose were even more active. As was to be expected, malt extract acted in the same way. On the other hand, the addition of malt extract to the flour solutions did not produce a like increase of acid formation; in fact, the acidity produced in these mixtures did not materially differ from that of the malt extract alone under the same conditions. In the wheat-flour mixtures the acid formation was usually somewhat less than in those containing barley flour. The course of the formation of acid was much more rapid with barley flour than with wheat flour.

III. DIGESTION, ABSORPTION, AND METABOLISM

The new-born infant's gastro-intestinal tract contains the disaccharid-splitting enzymes in sufficient quantity to insure the breaking up of the sugars into the absorbable monosaccharids. The succus entericus contains lactose, maltose, and invertin, the latter being present in smaller quantity, probably, than the other two. The starch-splitting enzyme of the pancreas, amylopsin, is, however, present only in very small quantities at birth, and does not develop sufficient strength for several months. All these enzymes are present, nevertheless, and offer the possibility for the digestion of the starch and sugar in small quantities very early. What action the intestinal bacteria have upon the sugars is, as yet, not definitely determined, and yet it is altogether likely that such action bears a very intimate relation to the etiologic importance of sugar in various acute nutritional diseases.

Under normal conditions, as in the adult, the carbohydrates are probably absorbed almost entirely in the form of monosaccharids. Under severe pathological conditions, however, such as exist in cases of intoxication, the finding of lactose (Finkelstein) and saccharose (v. Reuss) in the urine is almost positive proof that the carbohydrate can be and is absorbed as a disaccharid in many, if not all, instances.

Sugar is found in the stool in only minute quantities, and then not constantly, and starch appears in variable quantities (as shown by the iodine test), dependent upon the amount in the food and the age of the infant. Milk sugar probably requires a longer time to be absorbed than does malt sugar, while cane sugar seems to be distinctly irritating to the intestine of the young infant.

An interesting finding is that of Nothmann[2], who, in examining the stools of premature infants (breast-fed), found lactase in every case, and he was able to detect sugar in the urine of these same babies by the osazone test. However, this was not always present. All the children did well and made normal gains in weight, without showing any signs of gastro-intestinal disturbances. This glycosuria he regards as of distinctly other origin from that encountered in intoxication.

In regard to retention of sugar: The animal experiments of Leopold and v. Reuss[3] are interesting. They found that by injecting milk-sugar solution subcutaneously in the dog, if the injections are repeated at frequent intervals (one hour), there is, after a few hours, a retention of practically all the sugar, while if the interval between injections is long (twenty-four hours), the retention is distinctly lowered (40 to 55 per cent of sugar retained).

Later, these same investigators duplicated their work[4], this time on infants, with almost exactly the same results. In some cases, where only a single injection was given, there was a slight sugar-retention, while in others the amount of sugar excreted was greater than the amount injected.

As to the pyrogenic action of sugar: Schlutz[5], whose work was done on rabbits and was especially thorough, came to the following conclusions:

"1. Lactose, if given intravenously, subcutaneously, or orally, possesses no distinct pyrogenic effects, no matter in what concentration or amount it is given.

"2. It does possess a definite though not pronounced influence on the temperature, if given subcutaneously or orally in an animal with a diseased intestinal tract, in combination with a medium containing a sodium salt, such as physiologic or Ringer's salt solution."

Leopold[6] has endeavored to find out which of the sugars is the most active in the production of diarrhea and fever. He gave by mouth a single dose of ten to thirty gms. of sugar to infants, and came to the conclusion that the sugars were active in the following order: milk sugar, glucose, cane sugar, maltose, and, least active, the maltose-dextrin mixtures. In my experience this agrees perfectly with the clinical facts.

After careful examination of the sugar content of the blood in infants, Cobliner[7] comes to the conclusion that infants, physiologically, have a higher sugar content in the blood than do adults. Those with exudative diathesis have a hyperglycemia. In dyspepsia and intoxication there is no increase of sugar in the blood, while in decomposition (marasmus) the sugar is reduced and rises progressively as the condition improves. In the so-called "salt fever" there is a hyperglycemia.

In the body of the infant sugar seems to act greatly like an inorganic salt. It seems to favor a retention of water in the system. This is loosely combined and is probably held in the subcutaneous tissue, as is best exemplified in those cases of long over-feeding with sugar, especially in the form of condensed milk. Should one of these children suddenly be taken with an intoxication, the loss of weight is so rapid and large as to jeopardize the life of the child. This can be explained only by the loss of a large quantity of water (of course, in the form of solution of salt), which is very loosely held in the tissues. Another important action of the sugar is the production of fever (already discussed). This is analogous to the "salt fever." As we have seen, it is not constant, but does occur under certain conditions, and in certain organisms, and to this, fever in "alimentary intoxication" is ascribed by Finkelstein.

The fermentative processes in the intestines are to a large extent produced by the action of the bacillus coli communis, the bacillus lactis aërogenes, and the enterococcus upon the sugars, and of these especially the milk sugar. This fermentation is in itself to be regarded as a normal process, since it occurs perhaps to a greater degree in the normal breast-fed infant than in one fed on cow's milk. The recent work of Edelstein and von Csonka[8], who found more acetic acid in the stool of the breast-fed infant and more capronic and butyric acid in the stool of one fed on cow's milk, would suggest that it is not so much a difference in the amount of fermentation as in the products of the fermentative process which is of value.

There is no absolute proof as yet that there is a distinct etiological relation between these acid products and nutritional disturbances. Bahrdt and Bamberg[9], by introducing small quantities of the lower fatty acids into the duodenum of a dog through a fistula, were able to observe a distinct quickening of the peristalsis, a condition which was almost totally lacking when the same were given by mouth, unless the quantity were very greatly increased. Though not absolutely conclusive, because carried out on dogs and under somewhat abnormal conditions, the results are strongly suggestive that the suspicion directed by the clinician toward the lower fatty acids is justified. These results, however, do not mean that the sugars are necessarily to blame, since the fats are much more likely to give these fermentative products than are the sugars.

IV. FORMS IN WHICH CARBOHYDRATES ARE USED

For the purpose of infant-feeding the carbohydrates may be divided into three classes: (1) the starches; (2) malt sugar and dextrin mixtures; and (3) milk and cane sugar. The difference between these in their various chemical characteristics has previously been brought out. The point to be determined, from the standpoint of the infant, is as to which of these are to be used and which not, under any and all circumstances. If we sum up in general the actions of the various carbohydrates as herein tabulated, we find that the infant's gastro-intestinal tract in the early weeks of life does not contain sufficient starch-splitting enzymes to insure a complete digestion of these substances. On the other hand, malt sugar and dextrin can be split up by the intestinal juices, and, as would be expected from the presence of milk sugar in the breast milk, it is easily split by the pancreatic and intestinal secretions. The milk sugar and cane sugar require somewhat longer time for absorption than does malt sugar, a fact which may be of some importance when we realize that the bacteria which most actively decompose the sugars are to be found in greater numbers in the lower portion of the small intestine than in the upper.

Another factor which may come into play is the amount of end-product of carbohydrate digestion absorbed in a given interval of time. For instance, if all the carbohydrate were composed of milk sugar, it would be reasonable to suppose that more of the end-product of carbohydrate digestion was absorbed in a given unit of time than if the carbohydrate consisted of a mixture of malt sugar and dextrin or starch. Whether such a large absorption of sugar products in a short time would act in such a way as to overwhelm the internal metabolism is, of course, problematical.

Another thing to be determined is whether the argument that because milk sugar is present in large amount in the breast milk it should be the chief carbohydrate constituent of artificial food-preparations is tenable.

In answer to this we must say that, aside from clinical evidences, we must take into consideration the fact that the presence of casein and fat of cow's milk, to say nothing of the different proportion of salts, produces a very much different bacterial flora in the intestinal canal, and that the amount of acid formation in the lower portion of the small intestine is perhaps far less in the child fed on cow's milk mixtures than in that fed on breast milk. Taking all these things into consideration, we may say, then, that the mere fact that milk sugar is the only carbohydrate to be found in the breast milk is not conclusive evidence that it is the only carbohydrate fit for use in the artificially fed child. In fact, clinical experience tends rather to the conclusion that milk sugar cannot be used in large quantities in the artificially fed child without producing grave disturbances. If, as we have already determined, the addition of carbohydrates to the food is necessary, and if it is not desirable that the whole of the carbohydrate in the food should consist of milk sugar, what carbohydrates should be used, and in what quantities?

V. CARBOHYDRATES IN THE FEEDING OF THE NORMAL INFANT

Before this question can be satisfactorily answered, we must consider at what age the child is able to take care of starch properly, and what form of starch is the most easily digested. From clinical experience, it is very likely that as early as three months the infant's gastro-intestinal tract, if normal, is able to take care of an appreciable amount of starch, and that this is most certainly true at the age of six months. Under certain abnormal conditions, which will be spoken of later, starch may be given in rather large quantities as early as three months after birth.

Heretofore very little attention has been paid to the variety of starch used. It has been thought that barley flour was more or less constipating in its action, while oatmeal was the reverse. Very little attention has been paid to other flours, such as arrowroot or wheat flour. The form in which wheat flour is given the baby, and which is proving very useful, is the flour-ball. This is prepared by rolling four cups of flour in a piece of cheesecloth, tying tightly, and boiling for six hours. This is then dried, the cloth removed, and the outside crust peeled off. The chalky center is broken into pieces and dried in an oven for two to four hours. It is then ground up and sifted until very fine. The flour thus obtained is used in much the same way as barley flour and oatmeal.

If we draw any conclusions from Klotz's work, we may say that fermentation is more active if barley is used, while it is less so if wheat flour is used.

In order to take up the question of how much carbohydrate is necessary in the food of the normal infant, we shall have to go more deeply into the problem of infant-feeding. We must always remember that the food for the infant is necessarily a composite food, and that no one of its constituents can be considered without, at the same time, considering all the rest. For the past few years I have been in the habit of giving children about an ounce and a half of whole milk to the pound weight in twenty-four hours, and then making up the remainder of the food by the addition of three-quarters of an ounce to an ounce and a quarter of carbohydrate. This carbohydrate has been added in the form of malt-sugar mixtures, principally those containing malt sugar and dextrin, and perhaps a certain amount of starch. Even in very young infants this has, in my hands, worked out far better than milk sugar. As to the milk-sugar content of food, I have depended absolutely upon the amount which is contained in the cow's milk. If we stop to consider this practice, we shall see that in reality we have four forms of carbohydrate: the malt sugar, the milk sugar, the dextrin, and the starch. Of these, the malt sugar is first absorbed, then the milk sugar, then the dextrin, and finally the starch, of course in the forms of end-products of carbohydrate digestion. There is continual absorption going on for a long period throughout the small intestine of the infant. It would seem that this might be of advantage by preventing a sudden taxing of the organism by a rapid absorption of one digestion product.

VI. CARBOHYDRATES IN NUTRITIONAL DISTURBANCES

In considering nutritional disturbances, it will be necessary to follow some set classification. The most simple classification, that which covers in a broad way all nutritional disturbances, is that of Finkelstein. He divides nutritional disturbances in the infant into four different clinical entities: (1) weight disturbance; (2) dyspepsia; (3) decomposition; and (4) intoxication.

Although he does not specifically state that weight disturbance may include the fat constipation, or Milchnährschaden of Czerny, still it is probably best included in this group. Other forms of weight disturbance show very little of interest, from the standpoint of the carbohydrates, and will be passed on without further discussion. The fat-constipation, however, is very interesting, especially in a therapeutic way. In fat-constipation we have a hard, dry, white stool, which is composed largely of calcium soaps. The condition is in all probability the result of a relatively too high fat content in the food. In the treatment of this it is interesting to note that it is not alone sufficient to reduce the fat, but the fat must be replaced by other foods of the same or nearly like caloric value. To do this with a single carbohydrate is to court disaster. Clinically, the best results are to be obtained by giving the infant a mixture consisting of starch and malt extract. You will note that I say malt extract rather than malt sugar. Why malt extract should be more active in overcoming constipation of this sort is questionable, but there can be no doubt that it is far more active in this respect than is the malt sugar. Milk sugar rarely comes into use in these cases, since the amount contained in the milk given is sufficient to cover the need.

When we come to the second group, or dyspepsia, an entirely different symptom-complex presents itself. Dyspepsia is characterized, clinically, by an increased number of stools, which usually are green and contain mucus and small curds; by vomiting; and by a slight rise in temperature. One of the chief etiological factors in the production of this dyspepsia is sugar. Whether this sugar acts directly by supplying material to the gastro-intestinal canal, which, when decomposed by the enzymes or bacteria or when absorbed into the system, produces this symptom-complex or not, or whether the products of sugar-digestion act in conjunction with the products of fat-digestion, or simply prepare the way for the action of these fats, is not determined. However, it would seem that, since there is such a strong similarity between the by-products of fat-digestion and those of sugar-digestion, these may act either singly or together in producing the same effect. Clinically, the same effect can be produced whether an excessive amount of fat or an excessive amount of sugar is given. It is to be noted in this respect that the milk and cane sugar are far more active in the production of this disturbance than is malt sugar.

From the experiments of Leopold and those of Bahrdt and Bamberg, as well as those of Edelstein and v. Csonka, it would seem that the materia peccans in sugar, as well as fat, dyspepsia is the fatty acids.

The indications for treatment in these cases are very clear. Both fat and sugar should be reduced to a minimum and then gradually increased, the carbohydrates being increased in the form of malt sugar and starch mixtures. In this respect the experimental findings agree perfectly with clinical experience.

The third form of nutritional disturbance, decomposition, is most frequently the result of nutritional disturbances caused by an excessive amount of carbohydrate in the food of very young infants. This carbohydrate is frequently cane sugar, since the most marked cases of decomposition or marasmus are those cases which develop as the result of nutritional disturbances brought about by feeding condensed milk to young infants. It would be impossible to say in how much the sugar itself is to blame for this poor nutritional condition. Any excessive amount of sugar, especially in the form of milk or cane sugar, when given to these marantic infants, quickly produces a dyspepsia, and not infrequently an intoxication. In these cases, as in those which have gone before, malt sugar is the best carbohydrate to be used. Larger quantities of this can be given and taken care of by the infant than of either milk or cane sugar.

For many years summer diarrhea (intoxication) has been regarded as a bacterial infection of the gastro-intestinal canal. It will not be possible to discuss here the many reasons why I do not believe this theory to be true. Whether this be true or not, no one can deny that under certain conditions, excessive amounts of sugar will produce this disturbance. Perhaps an example of just what I mean here will be of advantage.

About two years ago I was consulted by a physician because of a diarrheal condition in his infant. At my suggestion he removed all fat from the food and placed the child on a skimmed-milk mixture. Much to my surprise, the child got no better, but became worse. I then advised that he take the child off food entirely and put it on barley water. This he did, with the result that the following afternoon he asked me to see his baby, and said that it was imperative that I come at once. I did so. I found a much prostrated child, with a temperature of 105° F., and a thin watery stool, which was being passed every fifteen or twenty minutes. The child was in collapse, and rapidly going down-hill. While I was on my way from the office to his house, the physician found out that his wife had obeyed instructions as she saw them, but had added sugar in large quantities to the barley water. It was necessary in this case, in order to check the rapid loss of water from the system, to give the child opium. Further treatment consisted only in supplying water to the child and in cutting out all food. By this treatment within forty-eight hours the child had recovered from the acute attack and was soon well into its convalescence.

I think it will be evident to everyone here that the disturbing factor in this case could have been nothing but the milk sugar which was added to the barley water. In my opinon, milk sugar is responsible for a very large proportion of cases of intoxication. We cannot say that the sugar in this instance acts in the same way as in the dyspepsias. The condition is a very violent one. It comes on very suddenly and could hardly be a result of a gradual accumulation of fatty acids in the system. We have direct evidence through the finding of sugar in the urine that perhaps the sugar is not split up, but is absorbed almost as it is ingested. We have direct clinical proof that with slight digestive disturbances the injection of the sugar subcutaneously can produce diarrhea and rise in temperature. It would seem, from clinical evidence, that the sugar was directly to blame for the condition of intoxication, but in what way it acts will have to be determined by future experimentation.

One should not conclude a paper of this sort without referring to the action of sugar in the exudative diathesis of Czerny. This diathesis is so frequent, especially among the poorer classes, that a large proportion of children are influenced nutritionally by its presence. It accounts in large measure for facial eczemas and for seborrheas, so common in infancy, and for the repeated attacks of tonsillitis and pharyngitis. The condition is influenced adversely by a high fat-content in the food. The free use of carbohydrate is therefore indicated. Czerny advises the use of starch in the early months, even in appreciable quantities before the third month. As the children get older, the amount of starch is increased and the fat is kept at a minimum.

RESUME

If we now take up the general indications which have been discussed in detail, we come to the conclusion that milk sugar must be very carefully used in infant-feeding; that the malt-sugar and dextrin mixtures and the various starches or the carbohydrates can be used with the greatest satisfaction. We see that carbohydrate is a very effective cause, if used in excess, of both slight and severe nutritional disturbances, and that probably the reasons for its action are not single, but mutiple; that is, that while in one condition it is injurious for one reason, in another condition it is injurious for another. While realzing the dangers in the use of excessive carbohydrates, we recognize that the carbohydrates form an indispensable portion of the infant's dietary; that when used with caution they can with advantage replace large quantities of milk fat.

Perhaps you may be surprised that I have made no mention of the carbohydrate as an etiological factor in the production of rickets. In my own experience, rickets in recognizable form has been an exceedingly common occurrence; severe rickets, with marked deformities, much less so. I have never been able to see any distinct connection between the amount of carbohydrates in the food and the occurrence of rickets, nor have I been able to see any distinct connection between the amount of carbohydrates in the food and the severity of the rickets. I therefore must take the position that rickets is not the result of a too high carbohydrate content in the food, but, rather, the result of a nutritional disturbance caused by a food which is unfitted for the individual case.

Before I close I wish to draw your attention to just one more item. In feeding infants of a year or over, one will obtain far better nutritional results if the common practice of giving large quantities of milk is dispensed with and carbohydrates are used in its stead. I make it a practice never to give over a quart in twenty-four hours to any infant, and it is rarely that I give over a pint and a half. The rest of the food is made up of cereals and vegetables, and with this mixture I find that the tendency to constipation is markedly lessened and that the children develop much better color and seem far more active. We may then say that carbohydrates, like other portions of food, may be used, but not abused; that the individual case must determine the kind and amount of carbohydrate chosen, and that the tendency has been to give too much milk sugar and too little malt, too much milk and too little carbohydrate.

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ABDOMINAL PAIN, TOGETHER WITH SOME ASPECTS RELATING TO DIAGNOSIS*

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MINNEAPOLIS

Pain is one of the most constant, as well as one of the most important, diagnostic signs of abdominal lesions. At times it is one of the most misleading.

To arrive at any rational basis for an understanding of the question we must turn our attention to, at least, three different fields: first, to the nerve-supply of the abdominal viscera and the abdominal wall and to their connections with distant nerves; second, to lymphatic vessels and lymph-glands, which carry infections and so may become inflamed areas of pain and tenderness; and, third, to the results of clinical experience, which gives a multitude of facts, many of which are not, as yet, satisfactorily explained.

Under the first section, as the result of prolonged investigation and research, the following is most generally accepted as true, in harmony with the findings of Lennander and his co-workers:

Abdominal organs that are supplied solely by the vagus and by the sympathetic system, have no sense of pain. Painful sensations within the abdomen are transmitted only by the cerebrospinal nerves. The stomach receives its supply from the vagus and the sympathetics; the small intestines, the appendix, and the large intestine, with the exception of the lower few inches, are supplied from the sympathetics. This is also true of the free border of the liver, of the spleen, and of the parenchyma of the kidneys. The kidney capsule, its pelvis, the ureter, the duodenum, and the retroperitoneal portion of the common duct, are in close relation to the intercostal nerves or are supplied by them. The abdominal wall is supplied by the lower six intercosts, the lumbar, and the sacral nerves, each being conected with the adjoining ganglion of the sympathetic system by one or more filaments. These nerves extend around the entire abdominal cavity with the exception of a small area below the crura of the diaphragm between the sympathetics, and in this area there is no pain on cutting, pulling, or pinching the attached mesentery.

Every surgeon knows that the intestine may be cut open in the second stage of the operation for artificial anus without the least pain. The whole intestinal tract, except close to the anus, including the appendix, the mesenteries, the omentum, much of the liver substance, the peritoneum covering the bladder, and the spleen, together with the parenchyma of the kidneys, is entirely without pain from cutting or sewing or from the actual cautery when the abdomen has been opened under local anesthesia.

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Not only is this true, but, contrary to all expectation, it is also true, apparently, in inflamed conditions of these organs. In a case with acutely inflamed gall-bladder entirely surrounded by adhesions, the writer caused no pain on separating the adhesions until the retroperitoneal tissues on the parietal peritoneum were approached and pulled upon, when there was great pain. Gangrenous bowel has been resected, and inflamed appendices have been found insensible unless the mesentery has been put upon the stretch.

The parietal peritoneum, however, is very painful to sliding, pulling, cutting, and sewing, and the pulling of a mesentery until its abdominal attachment is put upon the stretch is immediately and intensely painful. Pulling upon the mesentery of the appendix caused the same pain and nausea that the patient had felt during an exacerbation of his attack of appendiceal colic.

Meltzer and Kast, of the Rockefeller Institute, working on animals, tried to prove that the visceral peritoneum is sensitive and that the results given above were due to the cocaine used in producing anesthesia of the abdominal wall. Their results were not convincing. It would seem that their theory was entirely refuted in man, at least, by two laparotomies which were done under saline anesthesia by Dr. J. F. Mitchell, of Washington, in which he found the same results he had obtained under cocaine anesthesia, and the visceral peritoneum was insensitive to pain.

Through gastric and intestinal fistulas the mucous membranes have been tested and have shown absolutely no sensation of pain on being pinched, pulled, or pricked. This has been shown also when the stomach and intestines have been cut and sutured under local anesthesia. This accounts for the painlessness of intestinal ulcers unless the tissues become attached to or invade the parietal peritoneum or the lymphatics. It accounts for the painlessness of some gastric and duodenal ulcers. How shall we explain the pain which we know is present in many of these ulcers? Lennander accounts for them by an accompanying lymphangitis. He states that so long as it is unassociated with a lymphangitis it remains painless, but that, when this is present, irritating substances of toxic or chemical origin are absorbed and carried to the sensitive tissues of the abdominal wall and cause the pain. We know that inflammation greatly increases this sensibility to painful stimuli. Lennander ascribed the pain of hyperacidity to absorption also.

This does not seem an entirely satisfactory explanation, and many have attempted to explain it on the supposition that the sympathetic nerves, which do not ordinarily transmit pain-impulses, may do so under abnormal or diseased conditions. However, this is purely an assumption. Much of the pain of colic, whether caused by ileus or by any other condition, can be explained by the tug on the mesentery. When a portion of the intestine is tied off and inflated, it straightens out like a sausage, and the ends pull on the mesentery. This is precisely what would occur when muscular spasm closes the bowel at two different points and the intervening muscles stiffen onto the intestinal contents between them. Contraction of the gall-bladder and ducts, with its resultant tug on the tissues about the ducts in gall-stone colic, may explain the pain in this condition. The region about the foramen of Winslow is especially rich in spinal nerves.

When it comes to the reflex and the referred pains, it will probably be found that there is some direct nerve-communication between the real cause of the pain and nerves from the part in which the pain is expressed. Pains referred from one organ to another are often very obscure. Both organs are more or less concealed, and it is often impossible to arrive at the evidence necessary for a solution of the question. However, many of the places of referred pains are in the skin in various parts of the body and would seem to offer an easier basis from which to work. Pain over the right shoulder is significant of disease in the liver. A few nerve-filaments in the liver run up through the phrenic nerve to the fourth cervical and so connect with the nerve bundles from the supra-acromial, which run into the fourth cervical nerve also. The pain from gall-stone colic, felt near the angle of the scapula, must be transmitted through the fibers of the particular dorsal nerves which supply this region, the third, fourth, and fifth. This means that the sympathetics from the gall-bladder and ducts must communicate at some point by definite filaments with these nerves. It is the same with the area of skin-tenderness often found in the left epigastric triangle, occasionally in the right, in gastric ulcer and in the area, even more diagnostic when it occurs to the left of the dorsal spines of the tenth to twelfth vertebræ. It seems true also of all the other skin areas of associated tenderness, which do not arise from other intervening pathological conditions.

There is another phase of the question which seems to strengthen this position. It has been stated that these skin-areas of tenderness never materially overlap. They are more restricted and definite when they occur than is the area supplied by the separate spinal nerves.

The skin-area of tenderness in gastric ulcers, for instance, is distinct from the tender skin-area sometimes found with stone in the kidney, and so on; so that, if we have three adjacent areas of tenderness caused by lesions of three different abdominal organs, the middle one would have a practically separate area of its own. On the other hand, the filaments of the spinal nerves overlap so much that if we take three of the dorsal nerves which supply the skin over the abdomen, the fields supplied by the upper and the lower ones practically meet across the field supplied by the middle one. So the referred skin-areas of tenderness are distinct areas, and the filaments of communication of the sympathetics from the various organs must, as a rule, be limited and able to carry impulses through the spinal nerves to more or less restricted portions of their nerve-centers.

If this means anything it seems to me that it means an immense amount of research to establish the definite lines of communication between the sympathetics from the various organs, with the spinal nerves and nerve-centers, so that, when we have referred areas of tenderness and of referred pains, we shall be able to study the distribution of the nerves to these referred areas, trace them back to the points of actual communication, whether these be in the axis cylinders or in the nerve-centers, and thence trace them down the sympathetic filaments to their endings in the abdominal organs, and thus arrive at the exact location of our diagnosis.

On the clinical side, we know that lesions of the various abdominal organs often cause pain in the region of the organ, and that this area is frequently painful to pressure. From this point of view it is always profitable to consider the ovoid cavity of the abdomen and the site of its various organs. This we all do, and it is very helpful. It suggests the site of the organs which are the most prolific source of pain and tenderness. As a rule, these areas are arranged about the periphery with the umbilicus, roughly, as a center. In part, the site of pain and tenderness is explained for the ovaries, tubes, and uterus, the sigmoid and the ureters, the kidneys and the gall-bladder, the pylorus, the stomach, the duodenum, the pancreas, and the appendix. The cause of the pains is not always so evident when we consider that the sympathetics which supply them do not carry sensations of pain.

The appendix, for example, has a fairly well fixed area of pain on pressure at McBurney's point, while we very well know that the inflamed tip may lie at some distance in any radius from this point, and that the place in which it lies may be tender or it may not, and often it is not. The tenderness at McBurney's point may be explained, largely, by a lymphangitis, which runs down the mesentery from the appendix and passes this point, increasing very markedly the sensitiveness of the spinal-nerve filaments which reach the root of the mesentery. It also explains a second point of tenderness which is frequently found, and that is a point an inch and a half from the navel on the same line. The lymphatics from the appendix run obliquely upwards towards the median line, and the juxta-aortic glands into which they mainly run lie to the right of the navel. This, in all probability, gives us the tender point just spoken of, and not the right lumbar sympathetic ganglion, as Morris thinks, which lies at about the same point. Further than this, some of the lymphatics from the appendix reach as high as the gland opposite the level of the duodenum. This leads to tenderness to the right of the median line, in some cases, at a higher level, and may very well have been a determining factor in making a diagnosis of ulcer of the duodenum in some cases which have proven to have been cases of appendicitis, and, in a greater number, the diagnosis of gall-stones which have been shown to have been appendicitis. The referred pains from the appendix must be traced back through the spinal nerves and through the sympathetic filaments which join them to the sympathetics of the appendix. When there is pain and tenderness at the site of the appendix itself, then the swollen or the contracting appendix must either pull upon the sensitive peritoneum or the retroperitoneal tissues of the abdominal wall or the root of the adjacent mesentery, or these tissues must themselves have become inflamed with resulting pain and tenderness.

Kidney pains must be explained by tension and by inflammations of the capsule and the pelvis, which alone are intimately associated with spinal nerves, and the gruelling pain of colic from stone in the kidney or ureter, to the spinal nerves associated with the pelvis and ureter and the tissues immediately about them. The lymphatics from the kidney drain into the upper lumbar group of juxta-aortic glands, and in inflammatory lesions this may give us a tender area on the same side of the median line, but at a distance from the kidney.

The uterus and the Fallopian tubes receive some spinal-nerve filaments, which accounts for pain localized in these organs, together with inflammations extending into the tissues connected with the abdominal wall and with pulls on these tissues from adhesions and other causes.

The ovaries are stated not to have nerves of sensation. If they do not have them it seems very difficult to explain the frequent pain and constant tenderness associated with them.

The lymphatic glands from the body of the uterus run outwards in the broad ligaments. They are joined by the lymphatics of the tubes, the ovaries, and the broad ligaments, all of which anastomose freely and run upwards and inwards to empty into the lumbar glands of the juxta-aortic group. While the upper branches empty into glands as high as the pelves of the kidneys, the lower-most communicate with the lower lumbar glands, which would be the first to become tender, in all probability, in the presence of inflammatory lesions, and we now would have a tender point at the same place in which we often have a tenderness in cases of appendicitis. If both the right and the left points, or if the left alone, were tender it would argue trouble in the pelvis. If the right area alone were tender it would argue in favor of an appendicitis, but lesions in the pelvic organs should be excluded or confirmed, of course, by a careful bimanual examination.

Pain and tenderness at the duodenum might be explained by irritation and inflammation of the tissues about the duodenum near the posterior abdominal wall and by inflammation and irritability of the juxta-aortic glands at the level of the duodenum. These glands might be involved, however, by a lesion in the kidney and, as we have already seen, by a lesion of the appendix or even of the pelvic organs. A carefully taken history and painstaking examination of the kidney region, the areas of tenderness and rigidity about the appendix, the pelvic organs, and the gall-bladder, together with the *x*-ray, with or without collargol injections of the pelvis, cystoscopic examination, and ureteral catheterization, where these are indicated, should clear up the diagnosis. Tenderness from a pancreatitis is in the epigastrium and is developed on deep-point pressure. It is due apparently to tenderness in the tissues near the posterior abdominal wall. Tenderness in the region of an inflamed and distended gall-bladder is hard to explain, unless by the fact that the displaced contents would distend still further the lower portion of the sac, and drag upon or displace the sensitive tissues about the duct, and if these were slightly inflamed the tenderness would be markedly increased.

In this brief discussion we have not attempted to cover the whole subject of abdominal pain by any means. We have tried, rather, to make it suggestive of some points of interest.

DISCUSSION

Dr. J. L. Rothrock (St. Paul): It may be truthfully said that there is no other region of the body in which diagnosis is so uncertain and difficult as in the abdomen. The reasons for this are that we have very few methods of diagnosis compared with other regions of the body. Notwithstanding the investigation and study which has been made within the last few decades, and notwithstanding the frequent opening of the abdomen by surgeons which has taught us very much, yet we have practically, for clinical purposes, but two methods of making diagnosis of abdominal conditions, namely, the history of the patient and palpation.

Dr. Mann has so well presented this subject that there is not much to be said without going too much into detail. I wish, however, to call attention to a phase of abdominal pain that has not been elaborated upon in this paper, and it would come under the third class of these rather uncertain conditions of which the doctor speaks. I refer to the interpretation of pain in women, especially in the lower part of the abdomen. These are pains which, so far as we are able to know, are associated with a neurosis, especially hysteria, and we look upon some of them as a form of neurasthenia. Neurologists and men who are familiar with this condition have given its proper estimate, but surgeons have been slow to recognize the influence of the nervous system in the production of pains in the abdomen. About ten years ago Lömer published a monograph on this subject, and he has given us a very excellent description of this condition, and he has given us methods by which we may recognize these pains. He calls special attention to hyperesthesia, present especially in nervous women in the lower part of the abdomen, which may simulate pains due to some organic lesion. In these patients any attempt to make a bimanual examination of the organ leads to the utmost resistance, so that often the examination cannot be made without giving the patient an anesthetic. It is true we sometimes find lesions of an organic character in these patients, occasionally a cystic degeneration of the ovary, or a slight inflammatory condition of the tubes. It becomes important to differentiate these symptoms from those due to organic disease. As a matter of fact, it is a most common experience that after the removal of such ovaries the pain and sensitiveness persist. Usually, when a neurosis is present, especially hysteria, it is liable to be masked, but there are special means by which we may diagnose the condition, by which we may find evidence of necrosis and we should carefully exclude all organic lesions before coming to the conclusion that the pain is wholly due to a functional disturbance of the nervous system. For the purpose of doing this I think it often advisable to anesthetize the patient and make a thorough examination to exclude all possibility of organic disease of the pelvic organ.

Dr. A. T. Mann (Essayist): I am very much pleased with what Dr. Rothrock has given, and it covers much important ground. When there is pain and tenderness in the lower abdomen in women of the neurasthenic type, we find that the pain and tenderness are apt to vary in their site, and often in their type, at repeated examinations. This is an important factor in making the diagnosis of the presence of a neurosis and not of an organic lesion. And, further, we sometimes find the pain in a little different place than when it is due to a definite abdominal lesion.

Before closing I want to develop one point of interest in the diagnosis of appendicitis and of pelvic disease, which I did not have the time to read. The lymphatics of the uterus, broad ligament, and ovary run upwards and empty into the chain of juxta-aortic glands from the lower lumbar glands to a point as high as the gland opposite the level of the duodenum. On the right side the appendix sends its lymphatic flow into these same glands. A lymphangitis extending from an inflamed appendix and involving the lower lumbar glands of the juxta-aortic group, gives a tender point at this place, the so-called second point of tenderness in appendicitis. Trouble in the pelvis may cause tenderness at this same point also. But we have lymphatics on both sides of the abdomen, so we may take the following as a rule: If the lower lumbar glands are tender on both the right and the left sides, it means trouble in the pelvis; if only the left is tender, it suggests trouble in the pelvis; if the right alone is tender, it is in favor of an appendicitis, though it may be due to trouble in the right half of the pelvis. If we get a good history of these cases it often throws out the possibility of trouble in the pelvis.

THE NEW PUBLIC HEALTH—THIRD PAPER

CONTROL OF NON-INFECTIOUS DISEASES

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MINNEAPOLIS

The previous articles of this series indicated that, so far as the infectious diseases are concerned, the great public-health fallacy of the 19th century consisted in the devotion of nearly all the effort to man's surroundings; of almost none at all to man himself. We know now that the sources of infection are in man; that the routes of infection are the routes of man's discharges; and that the discharges are harmless until they enter man again. It is true that when the infective agents reach their goal the resistance of the individual, pitted against the injurious powers of the infective agents, decides whether or not actual disease develops. But this resistance of the individual is not to be measured by his surroundings: it is intrinsic in himself. Alterations of intrinsic resistance do, of course, constantly occur, but the factors of those alterations are not, as a rule, to be readily ascertained. We think that great extremes of malnutrition, temperature, and so forth may "depress" resistance. We have evidence that the smoke nuisance, poor ventilation, or smells from slaughter-houses do not. In brief, granted sufficient exposure to infectious disease, the susceptible individual will succumb, though he live in a palace; the immune individual will escape, though he dwell in the slums.*

The outcome of the 19th century environmental doctrines was the binding of heavy burdens of routine administration concerning surroundings upon health departments. Results: garbage disposal, a polytechnic trade; street-cleaning, a scientific profession; plumbing, a fine art; and the supervision of infection, a dubious and usually a temporary "job."

We have pursued chimeras; pursued them in good faith of course, but chimeras none the less.

Suppose now that we admit our errors and give to the supervision of tuberculosis,** which we do understand, one-half the effort we have given to the supervision of ventilation, which we do not understand. Suppose, in brief, we really organize and really operate a real machine which really does reduce, even promises to abolish, the infectious diseases. Will it be a surrender of our birthrights for a mess of pottage if we surrender the chasing down of loose paper on the streets and the cleaning up of rubbish piles on vacant lots, to turn our attention solely to the "mere abolition of infection"? Are there not activities contributing to health beyond these limits? Surely, yes; and some of them are things that should be done at once without waiting for that "mere abolition" to be accomplished. For example, everyone knows that the bodily welfare of mankind does not by any means hinge wholly on the infectious diseases. True, the abolition of these diseases means also the abolition of their immediate sequelæ,—sometimes as in measles, more harmful than the original attack,—and of their remote sequelæ, the permanently injured kidney and the permanently weakened lung. But even so, a full half of our medical diseases and much more than half of our surgical diseases would still remain; moreover, merely to remove disease is not to solve the whole problem of securing health in its true sense, i. e., the highest physical efficiency prolonged for the greatest period of time.

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*Tuberculosis has long been held an exception to this rule. But tuberculosis was also long held as (a) non-infectious and (b) hereditary, as well as (c) a result of certain surroundings. We have reversed (a); we have reversed (b); we may yet see good reasons to modify (c).

**To say nothing of syphilis, gonorrhea, summer diarrhea, and the rest.

The chief of the many phases of disease and health are best shown by a parable:

As a new automobile is accompanied by detailed instructions for its care and operation, so the new small citizen when he, a delicate and complicated machine, indeed, first appears on the scene, should be accompanied by detailed instructions for *his* care and operation, now accumulated by the parents chiefly from experience (*his* experiences) or by picking them up at random from the neighbors over the back-yard fence.

Again: As a new automobile is searched solicitously for missing or defective parts, to be solicitously and immediately made good before the machine is sent out to run against competitors on the highway, so the new small citizen should have at least his sight, his hearing, and his breathing tested before he begins the inevitable compulsory-education race against all comers on the public highway of the public schools. But further: As the most initially perfect automobile, most skillfully run, will yet, as time goes on, meet accidents, develop internal disruptions, and require repairs, so the new small citizen, despite early care and early correction of defects, will need supervision and repair all through his life, at school and afterwards.

The parable must end here, for automobiles present no affections analogous to infectious diseases. This very fact, however, brings out more clearly the crucial distinction between man as a machine and man as a subject of infection. As a machine, he may be efficient or inefficient, well operated or ill operated, and this all quite apart from the existence of actual defect or disability. Contrariwise, as a machine he may suffer initial defects or encounter accidents or develop internal disruptions, all quite apart from his intrinsic efficiency or inefficiency and quite apart from the skill with which he is operated. But as a subject of infection, man is merely a soil more or less well suited to the growth of certain small plants, or animals.*

The most valuable production of the state is its citizens, and the state exists only to insure life, liberty, and the pursuit of happiness to them. As the automobile maker insists, *for his own sake,* on (a) giving instructions and (b) correcting defects; so the state should, *for its own sake,* (a) instruct parents and (b) remedy children's defects, perhaps also the defects, disabilities, and diseases of adults. Certainly, every state should provide at least—

1. Education for parents in the personal hygiene of children, i. e., the care and operation of their children's bodies as machines; and education also for children in the physical care of themselves.
2. Supervision, not only for the mere detection, but also for the remedy, of initial defects, and should provide this early in life, certainly not later than the beginning of the compulsory-education course.
3. Supervision of children at least throughout school-life for the detection, *and remedy,* of such defects, disabilities, or diseases as may develop during that period.**
4. The supervision of infectious diseases.

But of all the manifold duties of the state to the citizen, only one of those which can be clearly shown to bear directly on his bodily welfare, has been as yet really recognized fully here—only one rests on definite precedent authorization and organization, the supervision of infectious diseases.

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*The fact that in their growth these little invaders from without "mess up the works" and make trouble, as much as would disruptions originating wholly from within, should not conceal the radical difference between the sources and causes of defects, disabilities, and non-infectious diseases on the one hand, and of the infectious diseases on the other. The former may develop in any mechanism; the latter only in those mechanisms which furnish a suitable soil for the growth of the extraneous invaders. To prevent the former the machine must be well built and of the best stock, must be scrupulously watched for defects, must be constantly overhauled, and must be cared for and operated in the most skillful manner. To prevent the latter the mere exclusion of the invaders is all-sufficient.

**It is difficult to see strictly logical reasons why such supervision should end with school-life. Germany and England are experimenting with the medical supervision of adults.

The personal hygiene of the citizen (*apart from the infectious diseases*), and the *treatment* (even, until lately, the mere *detection*) of his defects, disabilities, or non-infectious diseases, have been regarded (except in the case of the pauper, the criminal, or the insane) as of little or no interest to anyone but himself. And this, notwithstanding that all his material surroundings, and all his relationships, business and social, have been of acknowledged interest to the state from time immemorial.

Why this apparent negligence? First, because material surroundings are property, and property has always had precedence over persons in almost every relation; second, because, in the special relation to disease, the old public health taught that the citizen was a result of his surroundings, and even in the infectious diseases this fallacy ruled, as has been abundantly shown.

Of course, the state is concerned with man's surroundings and relationships. It must consider, plan for, and carry out measures for his comfort, convenience, safety, pleasure, and happiness, as well as merely for his health. The state exists to do for its citizens co-operatively, hence economically and authoritatively, all those necessary things which the individual could do only by great sacrifices or perhaps not at all. But to believe that the securing to the individual of every possible advantage in all directions is the duty of the state, is not necessarily to believe that every item of this program should be carried out by health departments. To hand over to any one subdivision of the government control both of man and of his surroundings, would be to hand over to it all the functions of government. At once, subdivision of these activities would be necessary and these subdivisions would necessarily pattern after those of the present government. Hence such a "readjustment" would merely replace existing governments, not add to their existing efficiency.

The secret of successful organization is the parcelling out *along natural lines* of all the different activities which are to be co-ordinated to one great end. It is upon the shrewdness with which the subdivision into logical natural groups is done that the securing of smoothly-running co-ordination depends. Certainly, one most logical grand division of any government would be that which should deal with man apart from his surroundings; and one most logical subdivision of that unit should deal with his bodily welfare as distinct from his mental, moral, or other welfare.

Using the automobile parable for guidance, such a "Commission on Bodily Welfare" should deal with—

Item 1. The education of *every citizen* in personal hygiene.

Item 2. The supervision of *every citizen* for detection of defects, disabilities, and disease.

Item 3. The treatment of *every citizen* for all defects, disabilities, and diseases detected.

Item 4. Finally, that function to which the automobile analogy does not apply, i. e., the supervision of that small group of citizens, the infectious persons.

How closely do we in Minnesota approximate this ideal?

Item 1. Proper education of every citizen in personal hygiene (*apart from the infectious diseases*) is scarcely even foreshadowed by existing efforts.

Item 2. Medical supervision (*apart from the pauper, the criminal, and the insane*) is limited to a small portion only, of the school children only, in a few cities only; and does not pretend to remedy defects, but only to detect them.*

Item 3. Treatment of disease (*except for the pauper, the criminal, and the insane*) is a matter of private purchase or of private philanthropy, usually the private philanthropy of the private practicing physician.

Item 4. The supervision of infectious persons is alone really established, authorized, or organized as a recognized duty of the state throughout the state, and then only so far as the protection of others is concerned. We have not yet reached the treatment of the sick even though they be sick of infectious disease.

But the mechanism for even this function, although it is actually in existence, actually organized, actually authorized, actually operating, and has behind it long years of legal precedence and the support of public opinion, is sadly undermanned, under-equipped,—merely a skeleton.

It is true that even those advanced states which have organized, in part or in whole, the above outlined operations, organized the control of infectious disease far earlier and more completely than they organized any of the others. They have done so in accordance with a general rule, which governs all mankind, namely, that of doing first the simplest, crudest, and most obviously necessary thing.

But it is also a matter of fact that the supervision of infectious persons differs essentially in principles, methods, object, extent of application, and destiny from education in personal hygiene, medical supervision, or medical treatment. The latter are obviously, directly, and immediately to and for the benefit of the individual who is educated, supervised, or treated. In principle, they are gifts of the state to its individual citizens. But the former is not to the benefit, usually rather to the temporary detriment, of the individual who comes under its operation. Its benefits are wholly to others, and even so do not add anything to their welfare, but merely prevent subtraction from it.

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*About two-thirds of the children of the state live and attend school in rural districts where medical supervision for defects is hardly yet even contemplated.

The methods of the infectious-disease supervisor are necessarily those of the detective and the policeman, not those of the educator or the physician. The object he seeks is prevention, not construction or even repair. He does not deal equally with every citizen for that citizen's good, as does the educator or the physician, but he ferrets out a few individuals who must be restrained for the good of the others. His destiny is, if successful, to eliminate the only reasons for his own official existence, while the educator and the medical supervisor for defects will always continue to find in each new annual crop of children a new and constantly increasing field for their services.

In brief, the first three items are, like boards of public works, constructional in essence. Supervision of infection is like the work of fire departments, conservative merely.

While we may accept the foregoing outline as entirely proper for ultimate realization, we must acknowledge that the present public-health situation cannot be met merely by handing this outline to the state and asking that it be put into effect. Still less can it suffice to hand the outline over to existing boards of health or health departments, notwithstanding that these are, by tradition and precedent, practice and organization, that arm of the government to which has been assigned the only activities of the state in relation to bodily welfare, so far seriously or widely recognized.

Health departments in general are undermanned, under-equipped, continually distracted with futilities. But if expanded, their distractions eliminated, and their faces set sternly to the reduction of disease and death, they could not at once assume all the items of this program. Why?

Item No. 3 we may dismiss from consideration at present. It is out of the question for many years to come.

For Item No. 1 the basic necessities,—knowledge, authority, and organization,—are all lacking. For Item No. 2 knowledge, authority and equipment can be had, it is true, although they may not be immediately available. For Item No. 4 only have we *now* all three,—knowledge, authority, and equipment, although the latter only in outline.

Furthermore, it is true that Item No. 1, the education of every citizen in personal hygiene, cannot be carried out properly (*apart from the infectious diseases*) by *any* organization at the present time.

Why? Because such education requires, first, the knowledge, digestion, and formulation of the facts to be taught; and, second, the training of those who are to do the teaching.

But the best of us do not know personal hygiene (*apart from the infectious diseases*); that is, we do not know how to care for and operate the human body as a machine. What, for instance, should be taught concerning diet when Chittenden of Yale and Wiley of Washington promulgate exactly opposite views? What should be taught concerning ventilation when the whole subject is in absolute chaos? What should be taught concerning clothing, sleep, exercise, and fatigue?

Our physiologists study the normal body, but more in relation to disease than to health. Our vital statisticians seek the factors of morbidity, not of physical perfection. Even the famous Federal "poison squad" sought to determine what is bad for people to eat, not what is good for them. All of these things are, of course, useful, excellent, even essential to know; but they do not teach us personal health, they teach only the avoidance of actual disease.

The truth is, that, as regards human bodily welfare, personal hygiene proper, we know but one factor, that is disease. We know disease because we have studied it. We know also the "personal hygiene" of farm animals because we have studied the "personal hygiene" of farm animals, at a cost of twelve million dollars a year. But we know nothing of the personal hygiene of human citizens, because we do not study it at all, apart perhaps from the hygiene of infants. We shall never know the personal hygiene of humans, apart, always, from the infectious diseases, until we do study it—until we put as much time, pains, and money into it as any agricultural experimental station in any state puts into the study of the "personal hygiene" of cows and hogs.

There is, however, no real reason why health departments should teach personal hygiene at all, *apart from the infectious diseases,* any more than that they should teach personal morals or personal finance. Health departments have no peculiar knowledge of the one any more than of the others; and if they had, there are professional teachers much more competent and possessing far greater facilities than any health department.

Even education concerning infectious diseases is not strictly health-department work. This, like personal hygiene, should be taught seriously and systematically in the public schools. Seventy-five per cent of the population never enter high schools, and only one per cent reach the university. Whatever of personal hygiene or prevention of infection the citizen should know, must be taught in the grades or miss its mark. No amount of desultory pamphleteering or lecturing by health departments can ever take the place of properly conducted grade courses. Unlike courses in personal hygiene, about which we know next to nothing, courses in the prevention of infection could be established at once, since we know almost all about it; but it is no part of health-department work to conduct such courses. Health departments are police bodies, not preachers or teachers. They may well, it is true, educate the educators. There is no reason why they should educate the public, except the failure of the professional educators to do so.

Medical supervision of school children, so far as it deals with defects, deals with non-transmissible conditions. Medical supervision, so far as it deals with infection, deals with transmissible conditions. The latter therefore detects links in the chain of the ramifying threads of infection throughout the community,—a ramification, the threads of which unquestionably should be in health-department hands.

But medical supervision for infectious disease in schools has had a singularly exaggerated importance attached to it. Only one-half of the state's children attend school in any one year, and even the school child passes but one-ninth of each year in school. Were health departments alert in their familiarity with, and efficient in their control of, the ramifications of the chains of infection outside of the schools, they would locate and supervise the infective child before, not after, he had infected school children; before, not after, the medical supervisors discovered him in the class-room.

But the fact that medical supervision for defects need never encounter infection in that one-fourth of the total population which is contained in the schools, if health departments do their work properly in the other three-fourths which is outside of the schools, carries, alas, no guarantee that infective children will not, for a long time to come, occupy a share of the medical school supervisors' attention. Especially will this be true in rural districts where nearly two-thirds of the children secure their education and where health-department organization and equipment is, practically speaking, non-existent.

Hence, whatever may be our individual views with regard to the ultimate relation of medical school-supervision for defects to supervision of infectious persons, we need not blind ourselves to the fact that ideal conditions are far in the future, and that immediate necessities call for immediate adjustments which may be temporary or not, depending on future developments.

Medical supervision for defects and medical supervision for infection are now, and, for some time to come, must remain, so interdependent that the closest co-operation, even amalgamation, especially in the rural districts, will be necessary. Such amalgamation, wherever possible at all, should be under health departments rather than under school boards.

First, because school boards have no authority from tradition, by precedence or by law, as have health departments to follow, outside of the schools, the ramifications of infection, of which the infective child in the schools constitutes but one link, nor even to follow that one link back to its home.

Second, because school boards have no information or authority concerning the full half of the children who are not of school age nor concerning any adult except those directly connected with the schools.

Finally, amalgamation in the rural districts is essential for one great reason, if for no other, and this reason is that if we do not combine both functions in one, in the rural districts, we shall not secure either function there at all.

SUMMARY

Non-infectious diseases, disabilities, and defects constitute a field for governmental attention as great as or greater than do the infectious diseases.

There are no theoretical reasons why governments should not concern themselves with the greater (the non-infectious group), as well as with the lesser (the infectious group).

Public-health activities in their very broadest conception would include all the functions of government, since there is nothing of interest to man, from high finance to municipal playgrounds, which has not some relation to health.

But an administrative system so vast as to control all human activities possibly relating to health, would merely replace the government, and would itself be necessarily subdivided, much as existing governments are now.

It is not difficult to outline a logical program for one branch of any government, a branch which should deal with the bodily welfare of man and include hygienic education, medical supervision, medical treatment, and the suppression of infectious diseases.

But there are many practical, as well as theoretical, reasons why health departments will not, indeed cannot, proceed at once to put this program into execution. Concerning education in personal hygiene, apart from the infectious disease, agreement as to the basic facts to be taught has yet to be reached. As to the second and third items, organization, broad precedent, and broad authority are all lacking.

Concerning the infectious diseases, and concerning them only, are the paths clear and the duties plain.

The "instant need of things" is to do faithfully and well that one duty which we fully understand, the only one for which organization, authority, tradition, precedent, and the support of public opinion are already in our hands, i. e., the abolition of infectious diseases. To this end, the embryonic beginnings of the medical supervision of every citizen—that is, medical school-supervision—should lend its aid, especially in the rural districts.

But until we have accomplished this—the simplest, easiest, crudest of our obvious and recognized duties—that one which lies right at our finger-tips, we cannot very well ask that the Nation should hand over to us all its great problems of life, death, health, and national development.

To achieve the abolition of infection we must strip for action, discard all useless armor and antiquated weapons, cease desultory bombardment at leisurely long range of the enemy's outlying domains, and personally seek, with well-shortened weapons, the enemy himself (infection) in his real stronghold (the infective person).

(The articles so far published have been intended to clear away the fallacies in principal and practice which have diverted public health attention and effort from the great immediate need of the abolition of infectious diseases.

Beginning with the next article, the constructive program of activities which should take the place of present obviously, inefficient and largely futile efforts will be presented. This program is not a merely theoretical one, it is based on active and successful practical field work in Minnesota, as well as on the teachings and activities of the most successful modern public health experts elsewhere.)

PROGRESS IN MEDICINE

Abstracts of medical reprints and articles on file in the library of the Department of Medicine, College of Medicine and Surgery, University of Minnesota.

UNDER THE CHARGE OF

DR. CHAS. LYMAN GREENE

Professor of Medicine and Chief of the Medical Clinic

These abstracts are read and discussed at the departmental meetings held monthly at the University Hospital.

OUR PRESENT UNDERSTANDING OF THE RHEUMATOID DISEASES

JOEL E GOLDTHWAITE, M. D.

Wisconsin Medical Journal, Vol. X, No. 5, 1911

Goldthwaite reproaches the medical profession with its neglect of chronic diseases and protests against the general attitude of indifference or neglect so general amongst practitioners.

He insists that rheumatic or rheumatoid disease comprises several distinct diseases, and he classifies them as follows:

(a) *Atrophic arthritis.*—Insidious, progressive, most common in young adults, chiefly in women, comparatively painless, but deforming and crippling.

Attacking usually the finger joints first, it extends gradually to others, and may result in destruction of the joints and fusion of the bones.

Atrophy is the dominant feature, first in cartilage, ligaments, and bone; later, in the muscles, skin, and peri-articular structure.

(b) *Hypertrophic arthritis.*—Thickening and hypertrophy of cartilage, increased density of bone, and the formation of nodes, such as "Heberden's nodosities," characterize this condition.

Atrophy of other tissues is usually little more than that of disuse.

(c) *Infectious or toxemic arthritis.*—This, the commonest form, is inflammatory and usually polyarticular, severe, persistent, and crippling, or mild and transitory.

(d) *Static joint lesions.*—Maladjustment such as occurs in "flat-foot," the dry "knee-joint," the relaxed sacro-iliac joints, afford examples of pain and varying degrees of disability due to this cause.

Goldthwaite attributes low lumbar aches and sacral pains to this cause, especially when increased by stooping, using the body in a flexed position, or by long sitting or the maintenance of one posture over considerable periods.

He speaks also of shoulder pains due to long sustained forward position or drooped posture and the resulting strain and pressure.

Many cases of subdeltoid and subcoracoid bursitis (so-called peri-arthritis) represent merely mechanical disturbances.

(e) *Gouty arthritis.*—This is characterized by the deposits of urate of soda in the joints and elsewhere, associated with destructive local joint-changes involving the shaft of the bones even to extensive absorption.

Treatment.—Atrophic cases contra-indicate depleting methods. They demand extra feeding, massage, fresh air, and sunshine. Tonics and nutritives are valuable, otherwise drugs are unimportant.

Contractures and deformities should be corrected after the quiescent stage is attained.

The hypertrophic type is often benefited by a careful diet and especial attention to excretions of body and protection of the parts affected. In certain cases the removal of disabling nodes is justifiable and desirable.

The infections of toxemic type demand the removal of the foci of infection. Disease of the tonsils, antrum, accessory sinuses, or even of the teeth, must be sought and removed. Complete and permanent relief often results. The author lays less stress upon genito-urinary infections, but much upon the importance of detecting and, so far as possible, correcting visceral ptoses.

The static ailments and gout are briefly dismissed, and a final appeal is made on behalf of the patient suffering from chronic disease of whatever form. Give to him the same care and thoroughness you would give to the acute and urgent case, says Dr. Goldthwaite, and relieve your profession of well-merited reproach. E. J. HUENEKENS.

THE SPECIFICITY, DANGER, AND ACCURACY OF THE TUBERCULIN TESTS

LAWRASON BROWN, M. D.

American Journal of the Medical Sciences, Oct., 1911

The introduction of the cutaneous test of von Pirquet and the conjunctival test of Wolff-Eisner and Calmette has greatly extended the diagnostic use and the knowledge of tuberculin.

All those laboratory animals which are tuberculous react to the tuberculin tests. It is not an ordinary toxin. The normal animal has tuberculin tolerance, but no tuberculin anaphylaxis. Tuberculous animals have tuberculin anaphylaxis and may be made to acquire tolerance. A difference between the mechanism involved in the ordinary tuberculin tests and that in anaphylaxis, is suggested by our inability to produce sensitiveness to tuberculin in normal guinea-pigs when a second dose is given cutaneously, intracutaneously, subcutaneously, or in the conjunctiva, though it may appear in normal animals when the second dose is given intravenously or intracerebrally. Apparently healthy infants fail to react even to doses of 1,000 mg., thus bearing out the statement that only infected animals react.

Autopsy reports disprove statistics tending to show that syphilis and certain other diseases react specifically to tuberculin, such cases representing double infections. The possibility that slight tuberculous infection may be adequate to cause reaction for a time, but leave no permanent pathological change visible to the naked eye, is to be considered.

Leprosy is an interesting exception as it apparently produces a definite reaction beginning later (24 hours) and lasting longer than in tuberculosis, and not reaching its maximum until the third or fourth day. The cutaneous test is often absent in this disease, and Babes reports 50 per cent of positive results with the conjunctival test.

The conjunctival test should be avoided in children and in all those persons who have had any eye trouble, and used only in dilute solution of old tuberculin (1 and 5 per cent). The cutaneous test is almost free from danger, rarely producing any acute reaction or other symptoms apart from the local manifestations. The positive subcutaneous test demands a general reaction, unpleasant but leaving usually no symptoms beyond a little weakness at the end of the second or third day.

In a few instances the writer has seen a slight temperature persist for months. In one case expectoration appeared and persisted for two or three weeks afterward. Dr. Brown believes that the appearance of tubercle bacilli in the sputum for the first time after such a test, indicates careless or insufficient antecedent examination.

In 286 tests tubercle bacilli appeared subsequent to the test in 18 cases, 14 of these being incipient. Dr. Brown would attach little weight to this small percentage, and he apparently believes that they would have appeared whether the test had been made or not. In only 2 of the 18 cases were respiratory symptoms increased. In all, 40 patients out of 286 showed some increase of the respiratory symptoms, but in only one could the reaction be connected with the appearance of the bacilli in the sputum. He, nevertheless, says that of late he has hesitated to use the subcutaneous test in patients who have never had tubercle bacilli in the sputum, that even so little a thing as the slight temperature disturbance produced may be sufficient to upset the patient's balance.

Finally, while minimizing the danger of the test he asserts the greater safety of the cutaneous method.

Focal reaction.—In the lungs of 127 patients, carefully examined during the reaction, 39 showed an increase of physical signs after the subcutaneous test, and these signs were in no way definitely related to the severity of symptoms or the degree of temperature. In a few cases the increased physical signs persisted.

The value of the test.—The writer demands differentiation, not only of tuberculosis from other diseases, but also of clinical from non-clinical cases, defining the latter as an infection with tubercle bacilli not yet clinically recognized, while clinical tuberculosis is recognizable by symptoms and physical signs, though it may be masked, active, quiescent, or arrested. *A large percentage of middle-aged persons, apparently healthy, react to tuberculin, and these same men may fall ill of non-tuberculous disease, present a reaction, and be the victims of an erroneous diagnosis.*

Dr. Brown believes that failure to react to 10 mg. of old tuberculin, given subcutaneously, does not exclude clinical tuberculosis, though in the presence of indefinite symptoms, it does not demand treatment.

Fifty-two per cent of his advanced cases react to 1 mg. or less. Of the incipient cases, only 42 per cent reacted to the same dose. In only 15 per cent of these and 4 per cent of the advanced cases were more than 5 mg. required to produce reaction. A negative subcutaneous test in a tuberculous patient may indicate an absence of receptors at the site of the lesion or the presence of the free antibodies in the blood. In some of these cases amboceptors have been found in the blood and may explain the failure of the test in the presence of an apparently positive clinical history. There is no known limit at which a perfectly healthy man will react, nor is there one dividing patients with tuberculous infection from those with clinical tuberculosis.

He would not assert that a failure to react to the 10 mg. dose disproves the presence of clinical tuberculosis. Of 9 patients who failed to react to that dose, given subcutaneously, 4 yielded a positive cutaneous test, 2 showed a positive local reaction, and 3 failed entirely to react to old tuberculin in pure strength. The local reaction was positive in every instance (176) where it was noted in patients who reacted to the subcutaneous test.

A cutaneous test loses its positive value after the age of seven or eight years, for by this time tuberculous infection and clinical tuberculosis are vastly different things, and the majority of both react to the cutaneous test. Dr. Brown would not accept a negative skin-reaction as excluding either of the foregoing, believing that it may indicate only that no sessile receptors are present at the site of the lesions. Ellerman and Erlandsen would make the differences of the average diameters of papules when four scarifications have been made through four similarly applied doses of tuberculin, each four times stronger than the preceding, a means of differentiating clinical tuberculosis from tuberculous infection.

Dr. Brown believes that the more nearly the technic approaches that of ordinary vaccination the more reliable the results, and that if a patient reacts to one drop of 1 per cent or of 5 per cent solution of old tuberculin given in different eyes, he is more likely to have clinical tuberculosis than if he reacted only to the cutaneous test.

He finds the intradermic test more sensitive than the skin test, sometimes reacting where the latter is absent.

He concludes that tuberculin is a specific test for the detection of tuberculous infection, that its danger is slight but in some cases very real and possibly severe, that even severe reaction has no connection with the appearance of tubercle bacilli in the sputum and that an increase of physical signs occurs in about one-third of all of the cases and in one-half of those with increase of pulmonary symptoms, and is also independent of appearance of tubercle bacilli in the sputum.

In practice, exposure to infection, hemoptysis, wet and dry pleurisy, and localized persistent physical signs at one apex, are of far more importance in clinical tuberculosis than the result of the tuberculin tests.

On the other hand, a positive reaction in the presence of dubious clinical symptoms may be misleading, of uncertain value, and of little weight in the face of positive symptoms.

The subcutaneous test is the most reliable, "but neither this nor any of the modifications as yet devised, differentiate clearly clinical tuberculosis that demands vigorous treatment from non-clinical tuberculosis that requires only a God-fearing life."

G. D. Head.

ADVANCES IN DIAGNOSTIC METHODS

Joseph H. Barach

Archives of Diagnosis, July, 1911

The writer restates the blood-cycle reported by him as occurring in *pertussis,* viz.: at the onset, a marked leucocytosis with an increase of all the forms; later, a lymphocytosis; and, last, an increase in the large mononuclears. Bi-lobed small lymphocytes (Reider's cells) and degenerated large mononuclears are frequently seen.

This is followed by a gradual decrease in the leucocytes and a return to the normal leucocyte count, except for a mild eosinophilia, which may persist for months.

If this symptom occurs at the onset it is of real value in early diagnosis. Dr. Barach believes there is a very definite connection between *anaphylaxis* and *asthma.* He reports having found marked eosinophilia in asthma, and also in association with tuberculin reactions, poisoning from sea-foods, and urticaria.

The author counts the finding of the embryonic parasite of trichinella spiralis in the blood as a distinct advance in diagnosis, stating that the first case was reported by Herrick and Janeway in March, 1909, and that the parasite may now be detected in a drop of blood taken from the lobe of the ear as in the ordinary blood-count. [It should not be assumed from this that such findings are at all constant by this method.] He would explain the high eosinophilia encountered in this disease as an evidence of anaphylaxis resulting from the body inoculation with the foreign protein substance of the trichinella spiralis.

J. E. Hynes.

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COUNTRY VS. CITY PRACTISE

The young physician who graduates from a medical school and who has served for a year or a year and a half in a general hospital, usually has his eyes open for a suitable place to locate. Not infrequently, the graduate becomes enamored of the possibilities of success in the city rather than the drudgery of country life. He sees a reasonable number of men in the city who enjoy, or, rather, labor at, a large and a seemingly remunerative business, and he announces that "his hat is in the ring." If the true history of the majority of city practitioners could be told it would offer cold comfort to the beginner. The number of men in cities who are successful and who acquire a good competency is small in comparison to the medical population. It is an undisputed fact that the great majority of city practitioners earn a bare living, and there are months when they cannot meet their expenses, modest and moderate as they are.

The temptation to remain in the larger places is very great on account of the association with medical men, the opportunities for clinical advancement, and the social advantages that are found in the city, all of which seem to outweigh the better financial returns in the country. If the young man becomes associated with an established physician or surgeon his progress is practically assured. The possibility of such an alliance is not very good, however, and but few can secure such a foothold.

On the other hand, the advantages of country practise are so great that few can afford to miss an opportunity that promises speedy monetary returns, low cost of living, and, above all, the probability that the doctor may become, and usually is, a respected and influential citizen. Recently a physician in a small country town in Minnesota employed an assistant on a percentage basis, both working for the common good. In four years the assistant had $5,000 in cash, was free from all debts, and lived a simple, peaceful, and busy life. Can many young men in the cities claim such an inheritance? Another instance has been recorded in a former issue of The Journal-Lancet where a recent hospital graduate located in a town of 1,000 inhabitants. He owned his house, hired his horses, kept a good office, spent several weeks each year in eastern cities, either in study or travel, and lived well at home, and after six years came to the city with $15,000 in cash. The struggles for supremacy in the country cannot compare with the waiting and longing for a sufficiency in the city. It is uphill work, a useless grind, a wearing out of the soul and mind, unless one is supplied with funds or has a limitless optimism and determination to succeed. The haste and waste, the high cost of living, and the deprivation from ordinary comforts in the city drive many a man into the country. Given ordinary intelligence, a reasonable ground training, and a business insight, the man who goes into the country acquires a firmness of character and independence in thought and action that will make him foremost in his community.

He will enjoy life and its comforts, as well as its trials, and can avail himself of many advantages that are denied the man in the city. Many country physicians not only are good practitioners, but are possessed of opportunities for financial betterment that their city fellows never think of.

When the busy city man is very busy he must deny himself many of the pleasures of life because of the demands upon his time. He either wears out faster or degenerates medically faster than his fellow practitioner in the country. He may live better and see more of social life occasionally and may sometimes see more of the world than the less fortunate man, but in the long run, the majority of the men in the country actually make more money, see more of other countries, and are in better health than the favored few who succeed in the city.

DR. L. C. WEEKS AND THE INDIAN QUESTION

A letter from Dr. Weeks of Detroit, Minn., which appears in our department of correspondence, will be found interesting reading, particularly as it criticises our editorial in the March 1st issue of The Journal-Lancet.

The editors offer their apologies for the incorrectness of the name of the physician on the Indian Reservation. Dr. Polk Richards' name appears on the roster of the State Association, and to him the editors again make amends.

The letter of Dr. Weeks contains much comment and information, but it does not change the main facts outlined in the former editorial. Neither Dr. Weeks nor Dr. Polk Richards is in any way to blame for the presence of trachoma, syphilis, or tuberculosis among the Indians. The Interior Department and Congress and a few lesser lights must carry the responsibilities.

For some reason, since the investigation of the conditions on the Reservation began, there has been a growing suspicion that the Clapp bill is more or less directly accountable for the deplorable disease states among the Reservation inhabitants.

Doubtless some statements in the daily press are exaggerated, but in the main the truth has been brought out.

It is not necessary to quibble about the whys and wherefores when unsanitary and unhygienic horrors are found to exist, and no determined effort has been made by the government to remove them.

When people are impoverished from dissipation, ignorance, and the wiles of tricky traders, it is quite probable that epidemic diseases will spread with great rapidity. When an epidemic follows in one, two, or three lines it is conclusive evidence that the original source of infection may have been checked by vigorous attacks, but as it happens in many cases and notably in the case of the Indian, those who knew of its existence in the early days either made no effort to suppress it or the government tied some one's hands so securely that the epidemic spread beyond all usual limits.

There has been a blunder somewhere, not only as to the invasion of infection, but as to the sale of Indian lands. If the Clapp bill is good, why have not its reputed safe-guarding provisions been carried out? In spite of Dr. Weeks' gentle sarcasm and his request for an apology, it is well known that those who are most intimately associated with troublesome problems not infrequently pass them over because they are difficult and annoying, and breed contempt.

It it an outrage that physicians and health officers on the Reservation, and in many other places, are inadequately paid for their services, but evidently it is true and will continue so until Congress can see the economy of maintaining the health of its wards.

We dare to reassert that, under proper management by competent health officers empowered by police authority, the epidemics among the Indians can be eliminated, and that the Indians may become self-supporting.

The editors, without the slightest semblance of sarcasm, thank Dr. Weeks for his letter, and assert that the information contained therein upholds the essential points in the editorial referred to.

PHYSICIANS AND AUTOMOBILES

Many interesting statistics have been collected by automobile manufacturers during the past year. As it is now a general custom to register licenses with the secretary of state, the exact number of autos used by any class of men can be ascertained exactly. The physicians lead all other classes, and some manufactures sell nearly one-third their entire output to them. The reason for this is simple, and yet it is twofold. In the first place physicians can afford to buy autos for the pleasure afforded by them; secondly, they cannot afford to be without them, for the time saved makes the machine a profitable investment to the profession and a comfort to every suffering patient in need of a doctor.

The 1912 machines have improved lines, a few extra appliances; and they are generally somewhat lighter, made of better material and are a trifle cheaper. In short, they are approaching a standard and perfect condition. The physician today in general practice who does not use a machine, is handicapped both by the absence of a means of doing his work advantageously and by a well-settled prejudice on the part of the public that he is not up to date.

And statistics have told another story. They conclusively prove that the physicians of the country towns are buying more machines, proportionately, than are the physicians of our cities. Curiously enough, this increase grows as the size of the city and town decreases; that is to say, the increase is greatest in the smallest places, and this rule has scarcely a single exception.

The above facts, not to be disputed, confirm what all well-informed men have long known, and that is, that the practice of medicine is more profitable in the country than in the city. The bright side of this truth is, that the country now commands the services of the best men our medical schools are turning out.

And the "moral" is plain: Go to the country, young man, for prosperity awaits you there and furnishes you an opportunity to fit yourself for the high service demanded by your profession.

CORRESPONDENCE

THE INDIAN QUESTION

To the Editor:

I notice that you have an editorial in your last issue on "Trachoma on the Indian Reservation." I do not know where you obtained the information upon which you based the editorial, but presume that you obtained it from the reports in the Twin City dailies, which have had representatives at the hearings held recently at Detroit. The editorial displays the same lack of knowledge of the facts in the case that the printed reports showed.

You state that the figures regarding trachoma were presented by Dr. Folk Richardson. There is no physician of that name on White Earth Indian Reservation. You probably meant Dr. Polk Richards, as he was the physician who testified here. A reference to the roster of the State Medical Association might have saved that error.

You stated that "the throwing open of the reservation through the Clapp bill is more or less responsible for the state of affairs." I am interested in knowing upon what facts you base your conclusions. The Clapp bill provided for the sale of lands owned by mixed bloods. No doubt many mixed bloods sold their lands for less than their actual value. No doubt some full bloods claiming to be mixed bloods have sold their lands and spent the money, but such sales are illegal and the land must be returned to such full bloods. But how this has impoverished an Indian who, before he sold his land, had never taken a dollar's worth of sustenance from it; how it has caused the spread of trachoma and tuberculosis, is something you fail to explain. Was there no trachoma or tuberculosis on the Reservation before the Clapp bill was passed? And if there was, did both increase at a terrific rate as soon as the mixed bloods got a little money on their lands? Not a bit of it. Twenty years ago the Rev. Mr. Gilfillan, an Episcopalian missionary, used to take parties of blind and partly blind Indians from this White Earth Reservation to eastern specialists for treatment at his own expense. Sixteen years ago when I made my first visit to the Reservation there were numerous cases of trachoma, and today old scars of healed tubercular and syphilitic lesions are so common among the Chippewas as to excite no comment. And all this before the Clapp bill was thought of.

It is a fact that "large sections of land are tied up in litigation," and that "titles are confused in the tangle," but this is owing to the fact that the provisions of the Clapp bill have not been followed out. Thousands of acres owned formerly by mixed bloods and legally sold by them to *bona fide* settlers, are in litigation on account of efforts of a corps of inspectors who are drawing large salaries from the tribal fund and who have prevented the issuance of patents to mixed bloods when the law expressly provides for the issuance of such patents. However, the "general poverty of the full bloods" has not been added to by these circumstances. Their physical, mental, and moral condition is practically as it was five years ago.

You intimate that we who live on the lands and in the communities adjacent to the Reservation are callous to the fact that so near to us there are great destitution and a large amount of disease. You owe us an apology, but we will not demand it from you, on account of the extraordinary interest you have always displayed for the welfare of the Indian and the almost superhuman efforts you have employed to ameliorate the conditions that surround him!

By the way, Mr. Editor, the combined salaries of the four physicians on this Reservation is about $4,400. The third-rate lawyer at the head of the force of investigators here at Detroit receives $5,000 a year, and several of his assistants get $3,500 a year for abstracting titles that young women can be hired to do for $75 a month. The wife of one of the leading investigators was on the pay roll at $75 a month when it was known that her condition was such that she seldom left her room at the hotel, and an alleged nephew of another was paid $75 a month to carry books from the vault of the register of deeds to the desk of the abstractor. The salaries of some of these alleged investigators (paid out of the tribal fund of about $5,000,000) might be used to stamp out disease, and no one be the worse for it.

You state that "this beastly state of affairs should be eliminated at once." From your closing statement I infer that you would begin the elimination by sending medical inspectors and a few soldiers into the field and in a short time the deed is done. Not only is disease banished, but the Chippewa Indian is made *self-supporting*—"incidentally." A very simple matter, I am sure. No one knows *how simple* it is, except those who know nothing whatever about it. Personally, I have my doubts, especially after reading the editorial a second time. With the best of feeling.

Sincerely yours,
L. C. Weeks, M. D.

Detroit, Minn., March 3, 1912.

Note.—A reply to the above communication is made in our editorial columns.—The Editors.

REPORTS OF SOCIETIES

MINNESOTA PATHOLOGICAL SOCIETY

On Tuesday evening, February 20, 1912, The Minnesota Pathological Society was organized at the Pathology Building of the University. The object of this Society, according to the constitution adopted, is "to cultivate the study and discussion of pathological problems." Those residents of the state of Minnesota "who are actively interested in some branch of pathological work" are eligible for election as active members.

About fifty attended the meeting and altogether nearly ninety have signified their desire to become charter members of the association. Besides those from St. Paul and Minneapolis, Dr. Tomlinson of St. Peter, and Drs. Martin and Linneman of Duluth attended the meeting.

The following officers were elected for the coming year: President, Dr. A. S. Hamilton; vice president, Dr. J. S. Gilfillan; secretary, Dr. H. E. Robertson; treasurer, Dr. J. F. Corbett; censors, Drs. F. L. Adair, R. H. Mullin, and H. A. Tomlinson.

This Society has been formed with so many marked evidences of enthusiasm that it seems to meet a real demand for such an organization. It requests the constant hearty support of all those interested in these lines of work.

H. E. Robertson, M. D., Secretary.

THE STEARNS-BENTON COUNTY SOCIETY

The Society met at St. Cloud on February 22 with sixteen members present.

Papers were read as follows:

"Pernicious Anemia," by Dr. J. S. Gilfillan, St. Paul; "Treatment of Rectal Abscess and Fistulæ," by Dr. Harry P. Ritchie, St. Paul; "Cases of Ectopic Pregnancy," by Dr. H. W. Goehrs, Melrose; "Report on Cases of Salvarsan Treatment," by Dr. A. F. Moynihan, Sauk Centre.

The main features of the very interesting papers were thoroughly discussed.

J. C. Boehm, M. D., Secretary.

NEWS ITEMS

TO MEMBERS OF THE MINNESOTA ASSOCIATION

The membership dues of the Minnesota State Association must be paid at once. The penalty for non-payment this year is as follows: loss of the medical defense protection, dropping of name from the published roster, and loss of The Journal-Lancet.

The fees now due cover the period from April 1 to Dec. 30, and the amount is $2.25. On January 1st the dues for 1913 will be collected and will be $3.00; and the fiscal year of the Association thereafter will be the calendar year.

THE A. M. A. MEETING

We desire to keep before our readers the plan of going to Atlantic City in special cars in order that the Northwestern men may improve this opportunity of meeting together when the cares of daily practice are thrown aside.

It is especially desirable that all who are to attend the June meeting send early word of their intention to this office.

Dr. W. L. Gauthier has moved from Hibbing to Chisholm.

Dr. Thomas Arneson has moved from Audubon to Twin Valley.

Dr. A. E. Brown has moved from Conde, S. D., to Webster, S. D.

Dr. A. V. Rock has moved from Hoven, S. D., to Mowbridge, S. D.

Dr. Lee B. Prouty has moved from Corona, S. D., to Conde, S. D.

Dr. L. O. Kron has moved from Williston, N. D., to Kalispell, Mont.

Dr. J. H. Titus has returned to Osakis after an absence of three months in California.

A movement has been started at Morris for a hospital, which shall cost not less than $15,000.

Dr. J. B. White, of Montgomery, has sold his practice to Dr. F. C. Westerman, also of that city.

Dr. J. L. Hoffman has moved from St. Paul to Minneapolis and has offices at 2703 E. Lake street.

Dr. Henry J. Herman, of Webster, S. D., was married last month to Miss Bessie Sammons, also of Webster.

The New London Hospital Association has been incorporated to build and operate a hospital at New London.

Dr. E. C. Rebman, of Truman, has moved to Austin and became associated with Dr. C. F. Lewis, of that city.

The physicians of Rochester gave Dr. C. H. Mayo a dinner last month to celebrate his recovery and return to work.

Dr. Horace Newhart, of Minneapolis, has returned from Europe, where he has been doing special work in the hospital.

Dr. Gilbert J. Thomas, of the Mayo staff, Rochester, was married on March 6th to Miss Ethel E. Fuller, of Gardner, Ill.

Dr. H. H. Hanson has moved from Sedan to Plummer, to take up the work of Dr. Robert Clark, who left Plummer some time ago.

The Sisters Hospital at Dickinson, N. D., will be opened next month. Six Sisters are coming from Switzerland to assist in the hospital.

Dr. Mary P. Hopkins, of White Bear Lake, was married yesterday (March 14th) to Mr. Jean H. Brandrup, a business man of Mankato.

Dr. J. F. Lovell, an assistant physician in the State Hospital at Fergus Falls, has resigned his position to accept a position at Westborough, Mass.

The Duluth papers extend a hearty greeting to Mayor-elect Dr. McCuen and bespeak for him one of the best administrations that city has ever had.

The physicians of Brainerd gave Dr. O. F. Batcheller a banquet on the eve of his departure to New York and his leave-taking of old friends in Brainerd.

Dr. Wm. J. Mayo will speak before the Ramsey County Medical Society on the evening of March 25th. The address will be given at the rooms of the Commercial Club.

Dr. D. J. Donahue, of Glendive, Mont., has been elected president of the Montana State Board of Health to fill the vacancy caused by the death of Dr. William Treacy.

A movement is under way at Rochester to erect a suitable memorial to the late Dr. W. W. Mayo. It is proposed to make this a tribute from the entire citizenship of Olmsted County.

Dr. Clara Hayden, a graduate of the State University of Iowa, will become associated with Dr. P. F. Holm, of Wells, after April 1st. Dr. Hayden is now doing post-graduate work in Chicago.

The Town Criers' Club of St. Paul, the organization of the city's advertising men, has invited the St. Paul physicians to a banquet to be held next month at which the pure foods "made in St. Paul" will be eaten and discussed.

The St. Louis County Medical Society is taking an active part in the infant welfare movement in Duluth, and will advocate the establishment of milk depots in various parts of the city where pure milk can be had at a low price.

The members of the Auxiliary Society of the St. Louis County Society will invite the wives of members of the State Medical Association to attend the annual meeting of the Association to be held in Duluth in October, and no doubt a delightful time will be given all who do attend.

The physicians of the new Lowry Building in St. Paul gave the builder, Mr. Horace Lowry, a banquet last month. This magnificent structure is one of the finest office buildings for physicians in the country, and this grateful recognition of the enterprise of the builder was highly creditable to the profession of St. Paul.

Dr. Samuel W. Lambert, Dean of the medical department of Columbia, and Dr. John L. Heffron, Dean of the medical department of the University of Syracuse, were visitors to the medical department of the University of Minnesota last month. Both were greatly pleased with what they saw, and spoke very flatteringly of the work of the department.

John Till, the so-called "plaster doctor," gave some interesting testimony in a damage suit brought against him some days ago in St. Paul. He gives internal remedies, such as turpentine, bitters, etc., in addition to his famous plaster for the back. He also testified that he once had 16,000 patients a month. Damage lawyers will soon do him up, even if he remains proof against medical-practice acts.

The "Universal Chiropractors' Association" has engaged "eminent" counsel to draw three bills in retaliation for the efforts of the Wisconsin regulars to make chiropractors study. These bills will require that all prescriptions be written in English, that prescriptions be issued in triplicate (one for the patient, one for the druggist, and one for the doctor), that the contents of every prescription shall be explained to the patient, and that the burden of proof in lawsuits resulting from surgical operations shall be upon the surgeon to prove that he operated skillfully.

ASSISTANT WANTED

A physican in general practice in a Minnesota village wants an assistant. A good opening for the right man. Address S. K., care of this office.

POSITION WANTED

I desire to assist a surgeon or physician in St. Paul a part of the day. Am practicing in the city and can give best of references. Am a member of the State Association. Address M. S. M., care of this paper.

PHYSICIAN WANTED

A competent physician is wanted in a good South Dakota town. Rent of a modern office practically free. This is a good opportunity in a money-making field. Address S. A. B., care of this office.

PRACTICE FOR SALE

I will transfer my practice to the purchaser of my residence listed at less than cost. Location, good town 25 miles from Minneapolis. Catholic preferred. Address G. D., care of this office.

POSITION WANTED

A graduate of the University of Minnesota, '05, desires a position as assistant to a general practitioner or surgeon. Would consider locum tenens for not less than three months. Address B. B., care of this office.

DESK AND CASE-RECORD FOR SALE

For Sale, an American Case & Register Company desk, with case-record and book-keeping system combined. Desk 5 feet long and 42 inches high; oak finish. Address Dr. H. G. Norton, 920 Rice street, St. Paul.

BOOKS FOR SALE VERY CHEAP

1 set, 16 vol., cloth, "Works of Theodore Roosevelt"	$15.00
1 set, 12 vol., cloth, "John Fiske's Misc. Writings"	24.00
1 set, 12 vol., ½ Morocco, Grand Sicle Edition "Twentieth Century Cyclopedia and Dictionary"	19.50
Bryant's Operative Surgery, 2 vols., ½ Morocco	10.00
Peterson & Haines, "Legal Medicine and Toxicology," 2 vols., ½ Morocco	12.00
Burnett, Ingals & Newcombs, "Diseases of Ear, Nose and Throat," 1 vol. cloth	5.00
Tuttle's "Diseases of Anus, Rectum and Colon," 1 vol., ½ Morocco	6.50
Butler's "Diagnosis of Internal Medicine," 1 vol., ½ Morocco	6.50
Johnson's "Surgical Diagnosis," 3 vols., ½ Morocco	21.00
Ochsner's "Clinical Surgery," 1 vol., cloth	4.00
Vol. 1, 2, 3, Osler's "Modern Medicine"	21.00
Total	$144.50

All of these books are as good as new; some have not been opened. I offer the lot for $50. Address B. R., care of this office.

Doctor: If you want practical postgraduate work during fine season in the delightful city, write for particulars. New Orleans Polyclinic, P. O. Box 797, Postgraduate Medical Dept., Tulane University of La.

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF MINNESOTA FOR THE MONTH OF DECEMBER, 1911

REPORTED FROM 82 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES.	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia
Ada	1,253	1,432	0													
Albert Lea	4,500	6,192	3			1										
Alexandria	2,681	3,001	1													
Anoka	3,769	3,972	5	1									1		2	
Austin	5,474	6,960	3		1						1					
Barnesville	1,326	1,353	0													
Bemidji	2,183	5.099	9			1								1	1	
Benson	1,525	1,677	2													
Blue Earth	2,900	2,319	3			1									1	
Brainerd	7,524	8,526	8			1										
Breckenridge	1,282	1,840	1													
Canby	1,100	1,528	0													
Cannon Falls	1,239	1,385	2	1												
Chaska	2,165	2,050	1			1										
Chatfield	1,426	1,226	0													
Cloquet	3.074	7,031	2	1												
Crookston	5,359	7,559	7			1							1			
Detroit	2,060	2,807	3			1		1								
Duluth	52,968	78,466	77	13	3	10		1					2	3	3	2
East Grand Forks	2,077	2,533	1													
Ely	3,572	3,572	2											1		
Eveleth	2,752	7,036	5				1									
Faribault	7,868	9,001	7		1	1										
Fairmont	3,440	2,958	4				1								1	
Fergus Falls	6,072	6,887	5		1										2	
Glencoe	1.788	1,788	3	1												
Granite Falls	1,454	1,454	*													
Hastings	3,811	3,983	0													
Hutchinson	2,495	2.368	0													
International Falls		1,487	2			2										
Jordan	1,270	1,151	3												1	
Lake City	3,142	3,142	4	2		1										
Le Sueur	1,937	1,755	2			1										
Litchfield	2,280	2,333	1			1										
Little Falls	5.774	6.078	5	1									1			1
Luverne	2,223	2,540	3													
Madison	1,336	1,811	0													
Mankato	10,559	10,365	9	2	2								1			
Marshall	2,088	2,152	0													
Melrose	2.591	2,591	1													
Minneapolis	202,718	301,408	282	33	7	29	6	2			1		5	9	20	
Montgomery	979	1,267	2	1												
Montevideo	2,146	3.056	2												1	
Moorhead	3,730	4,840	6										1		1	
Morris	1,934	1,685	2				1									
New Prague	1.228	1,554	0													
New Ulm	5.403	5.648	7			2		1								
Northfield	3,210	3.215	1										1			
Ortonville	1,247	1,774	4										1			
Owatonna	5.561	5.658	6	2										1	1	
Pipestone	2.536	2,475	2												1	
Red Lake Falls	1.666	1.666	0													
Red Wing	7.525	9.048	12			2									2	
Redwood Falls	1.661	1.666	1													
Renville	1.075	1,182	1											1		
Rochester	6.843	7,844	23	1		1	1								10	
Rushford	1.100	1.011	0													
St. Charles	1.304	1,159	1		1											
St. Cloud	8.663	10.600	10	1		1										
St. James	2.102	2,102	0													
St. Paul	163,632	214,744	201	26	3	13	5	7			2	1	5	7	16	1
St. Peter	4.302	4.176	1								1					
Sauk Centre	2.154	2,154	1													
Shakopee	2,046	2,302	2											1		
Sleepy Eye	2.046	2,247	0													
South St. Paul	2,322	4,510	1			1										
Staples	1,504	2,558	2			1										
Stillwater	12.318	10,198	16		1								1	1	2	
Thief River Falls	1,819	3,174	1													
Tower	1,111	1,111	0													
Tracy	1,911	1,826	2													
Two Harbors	3,278	4,990	2												1	
Virginia	2.962	10,473	10			1								1		
Wabasha	2.622	2.622	*													
Warren	1.276	1.613	0													
Waseca	3.103	3,054	3	1												
Waterville	1,260	1.273	2													
West St. Paul	1.830	2,660	1													
Willmar	3,409	4,135	4	2												
Winona	19.714	18,583	22		1			1			2		1		1	1
Winthrop	813	1,043	0													
Worthington	2.386	2,385	3													

REPORTED FROM 55 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia
Adrian	1,258	1,112	1													
Aitkin	1,719	1,638	2	1												
Akeley			1													
Appleton	1,184	1,221	0													
Belle Plaine	1,121	1,204	*													
Biwabik		1,690	1													
Bovey		1,377	0													
Browns Valley	721	1,058	0													
Buffalo	1,040	1,227	0													
Caledonia	1,175	1,372	1													
Cass Lake	546	2,011	3			1			1							
Chisholm		7,684	5	1										2		
Coleraine		1,613	2													
Dawson	962	1,318	1			1										
Delano	967	1,031	1													
Farmington	733	1,024	1													
Fosston	864	1,055	2												1	
Frazee	1,000	1,645	5										1			
Glenwood	1,116	2,161	4			1										
Grand Rapids	1,428	2,239	0													
Hibbing	2,481	8,832	5			1								2	1	
Jackson	1,756	1,907	1													
Janesville	1,254	1,173	0													
Kenyon	1,202	1,237	1													
Lake Crystal	1,215	1,038	1	1												
Long Prairie	1,385	1,250	0													
Madelia	1,272	1,273	1													
Milaca	1,204	1,102	0													
Mountain Lake	959	1,081	2													
Nashwauk		2,080	2													
North Mankato	939	1,279	1													
North St. Paul	1,110	1,404	0													
Osakis	917	1,013	1			1										
Park Rapids	1,313	1,850	0													
Pelican Rapids	1,033	1,019	0													
Perham	1,182	1,376	1													
Pine City	993	1,258	0													
Plainview	1,038	1,175	1													
Preston	1,278	1,193	1													
Princeton	1,319	1,555	3			1										
St. Louis Park	1,325	1,743	0													
Sandstone	1,189	1,818	0													
Sauk Rapids	1,391	1,745	1			1										
South Stillwater	1,422	1,343	0													
Springfield	1,511	1,482	2	1												
Spring Valley	1,770	1,817	2	1												
Wadena	1,520	1,820	1	1												
Wells	2,017	1,755	1			1										
West Minneapolis	2,250	3,022	1													
Wheaton	1,132	1,300	1													
White Bear Lake	1,288	1,505	3												1	
Windom	1,944	1,749	0													
Winnebago City	1,816	2,555	*													
Zumbrota	1,119	1,138	1	1												
STATE INSTITUTIONS																
Fergus Falls, Hospital for Insane			8	2											1	
Rochester, Hospital for Insane			17	2											1	
St. Peter, Hospital for Insane			5	1	1											
Anoka, Asylum																
Hastings, Asylum			1													
Faribault, School for Deaf																
Faribault, School for Blind																
Faribault, School for Feeble Minded			7	2	1	1										
Owatonna, School for Dependents																
Stillwater, State Prison			1													
St. Cloud, State Reformatory																
Red Wing, State Training School																
Minneapolis, Soldiers' Home			12												1	
OTHER PARTS OF STATE			672	57	6	55	14	2	1	2	6	1	4	21	51	8
Total for state			1607	160	29	138	29	15	2	2	13	2	26	52	123	13

*No report received. **Registrar** not doing his duty.

162 stillbirths and premature births not included in above totals.

Looking Into
The
"Coffee Question"

necessarily involves a consideration of the now well-known and well-established cereal beverage

POSTUM

With modern advances in pharmacy—the discovery and isolation of alkaloids and a knowledge of their physiological action on the human system—has come a more intimate knowledge of the

Uses and Abuses of Caffeine

—the alkaloid in Coffee and Tea.

As in some other instances, people have learned that **something** in Coffee causes various ailments. It remained for science to discover and define that "something." It is now known to be **Caffeine.**

But, to induce mankind to forego Coffee, even though it contain a drug, was no easy task for the physician or nurse.

Postum, however, has made it practicable for the physician to obtain the **cooperation of patients,** the successful treatment of whose cases **demand** that Coffee be abandoned.

When Postum is properly prepared (see directions on package) it is a most palatable beverage. With cream, it resembles, in flavor, high-grade Java; yet possesses a "tang" peculiar to itself which many come to like the more they use it. Made of clean, hard wheat and a small percent of New Orleans molasses, Postum is free from **Caffeine** or any other harmful substance.

The "Clinical Record" for the Physician's bedside use will be sent, prepaid to any physician or nurse who has not already received one. Also a box of samples of Postum, Grape-Nuts and Post Toasties.

Postum Cereal Company, Limited, Battle Creek, Michigan, U. S. A.

PUBLISHER'S DEPARTMENT

THE MINNESOTA EYE, EAR, NOSE, AND THROAT HOSPITAL

Drs. H. A. Beaudoux and E. C. Wheeler, of St. Paul, have opened the above hospital, which we believe to be the only one in the Northwest devoted exclusively to this work. They have obtained control of the White Bear Sanitarium building, and now conduct this 45-bed hospital on the beautiful suburban lake of White Bear. It is a modern building thoroughly equipped in every respect, and the location spells cheerfulness for any patient who enters it.

MALTED MILK

The fact that malted milk has its place in the dietary of infants under conditions that exist well nigh universally today, cannot be doubted, and this place has been demonstrated by scientific study.

At the close of Dr. Grulee's lecture before the Hennepin County Medical Society a few days ago, he was asked what food he gave under conditions which he had described in his lecture. He said at once Horlick's malted milk. As Dr. Grulee is assistant professor of pediatrics in Rush Medical College, this was very high praise of the Horlick product, which is, perhaps beyond question, the best malted milk yet produced.

AS GOOD AS NEW

How many of our readers, we wonder, know how much is added to the life and looks of clothing by the modern process of dry-cleaning, such as is done in an establishment like that of Charles Kronick, with offices in Minneapolis, St. Paul, and Duluth? We venture not one in ten, and so we advise the other nine to drop a card to Charles Kronick, in either of the above cities, to learn about the work of a modern cleaning and dye house. It's worth while.

SCARLET FEVER, MEASLES AND CHICKEN-POX

Our readers are hearing a good deal about the above diseases in Dr. Hill's series of papers running in our columns, but not much about their treatment. In the treatment of these diseases three things are essential: First, to keep the patient from exposure and dangerous complications; second, to avoid conditions that mean certain and serious sequelæ; third, to protect against the spread of the disease.

The first and second points are covered in the usual manner of supplying proper surroundings and diet. The third is still more important. Unless the itching and smarting of the skin can be overcome, the inevitable scratching follows, and the consequences, both to the patient and those about him, are grave.

For the proper care of the skin under the above conditions there is probably nothing superior to K-Y Lubricating Jelly, manufactured by Van Horn & Sawtell, a firm so well known by another product, their chromic catgut, which has come into almost universal use.

The firm recommends their K-Y Jelly with a confidence quite equal to that reposed in their catgut. This jelly is very bland and possesses remarkable emollient properties, while it is non-greasy, never stains, is soluble in water, and may be used with the greatest freedom. It absolutely stops smarting and burning, and tends to prevent the spread of the infection from the broken papules and thus protects the well.

A GREAT BANK

The modern bank, with an affiliated trust company, is an institution whose services are needed in every household; and both the home and the business house today is fortunate that, however small its transactions, it has offered it the services of banks of enormous resources and unquestioned reliability.

Such a bank is the First National of Minneapolis, and it will extend to every one of our readers the same courtesies that the smallest bank offers, with facilities that the small bank does not possess; and this is especially true of its trust and savings departments.

We can recommend this bank without qualification.

A DISTINCTIVE PIECE OF LITERATURE

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POLYCYSTIC DISEASE OF THE KIDNEY*

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Polycystic disease of the kidney, the subject under discussion in this paper, is that type characterized by the presence of multiple cysts of all sizes throughout the renal substance. (Figs. 1, 2, 3.) It is not to be confounded with those formations in the kidney where only a solitary cyst can be demonstrated, nor with the cystic degeneration of the fetal or infant kidney. The latter condition is definitely congenital, is probably due to some defect in development, and is often associated with other abnormalities, such as clubfeet, harelip, etc. Whether the disease in the adult is congenital in origin and due primarily to the same causes which produce the condition in the fetus, is still an unsettled question. It is not within the scope of this discussion to advance the arguments of various investigators in support or disproval of the congenital theory, but, rather, briefly to deal with some of the important features of the process as seen in the adult.

Etiology.—Statistics show that the condition is found most frequently in middle life, though the exact time the process commenced cannot be accurately determined. During the past year six cases have been observed in St. Mary's Hospital (Mayo Clinic), with ages as follows: 6, 29, 42, 51, 57, 60. The age of the youngest patient recorded in the literature is four months and a half, and the age of the oldest 88 years. As regards the sex, observers differ greatly. In our series, four were females and two males.

Symptoms.—It is undoubtedly true that the condition may be present for some time, without producing any symptoms of which the patient is cognizant. During the course of a routine general examination, large nodular kidneys are often discovered, of which the patient knew nothing, or he may have accidentally become aware of a mass in the region of the kidney, and consulted for advice, although no other complaint was admitted. The number and size of the cysts present is evidence to prove that the kidney can attain considerable enlargement without interfering seriously with the secreting power of the organ, because, in some instances, even up to the time of death, an amount of urine above the average will be secreted.

In the majority of cases, however, as the process advances, a more or less definite train of symptoms develop. Pain, of a varying character, is present, sometimes a constant aching and sense of weight in the loins; at other times severe renal colic. With the pains, or, at irregular intervals (and a fairly constant symptom), bloodv urine is passed. In some of the cases this has been the first suggestion to the patient of any trouble being present. Occasionally, urinary retention occurs temporarily, followed by the passage of a large quantity of bloody urine, which may be due to a hemorrhage into a cyst and the subsequent evacuation of the hydronephrotic sac. Frequent micturition is a symptom common to most cases, the twenty-four hour specimen usually showing an amount above normal.

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* Read at the 43d annual meeting of the Minnesota State Medical Association at St. Paul, Oct. 5 and 6, 1911.

With the progress of the disease constitutional disturbances ensue, due mainly to the co-existing interstitial nephritis, such as loss of weight, marked reflex gastric disorders, secondary cardiac hypertrophy, arteriosclerosis, general failing health, and, in the later stages, uremia. The urinary findings are not typical, varying with the extent of the disease, and are similar to those of a chronic interstitial nephritis, with the presence of blood in many instances.

Diagnosis.—The diagnosis rests mainly on the presence of a tumor in one or both flanks, having the general contour of kidney with a nodular surface. If both kidneys are involved, polycystic disease is almost certain, as this is practically the only kidney tumor regularly of a bilateral character. The knowledge that such tumors may attain considerable size without producing any symptom or affecting the general health of the individual should lead one to suspect polycystic kidney. Differentiation between this condition and hydronephrosis, pyonephrosis, hypernephroma, is occasionally necessary, but is readily made by means of ureteral catheterization.

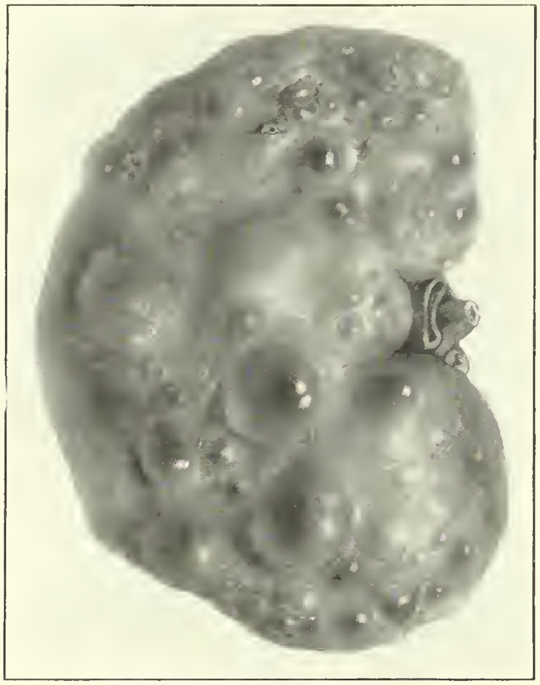

Fig. 1. Polycistic kidney.

Prognosis.—Unless the patient is carried off by some intercurrent dsease, the affection is probably always ultimately fatal from gradual destruction, by pressure, of the normal tissue of the kidney, although, as the secreting structures of the kidney are markedly resistant to outside pressure, it is not unusual for patients to live comfortably a considerable period of time with a fairly advanced cystic degeneration present.

Treatment.—In deciding upon the treatment to be advised one fact should be borne in mind, namely, that the disease is always bilateral. If such a condition is evident, surgical measures are of course useless, and treatment should be along general lines, based on the knowledge that the functionating power of the kidney is gradually being impaired. Efforts should be directed toward retaining this function as long as possible. Even with the knowledge that bilateralism is almost constant, one is occasionally unable to detect more than an enlargement on one side, and under such circumstances the patient should be given the benefit of an exploratory operation. If the kidney of the opposite side is grossly unaffected, a nephrectomy is indicated. But, unfortunately, even in apparently favorable cases following nephrectomy, it frequently happens that the extra work the remaining kidney is called upon to do, lights up (if not already present) a similar condition and a rapidly fatal termination from uremia follows.

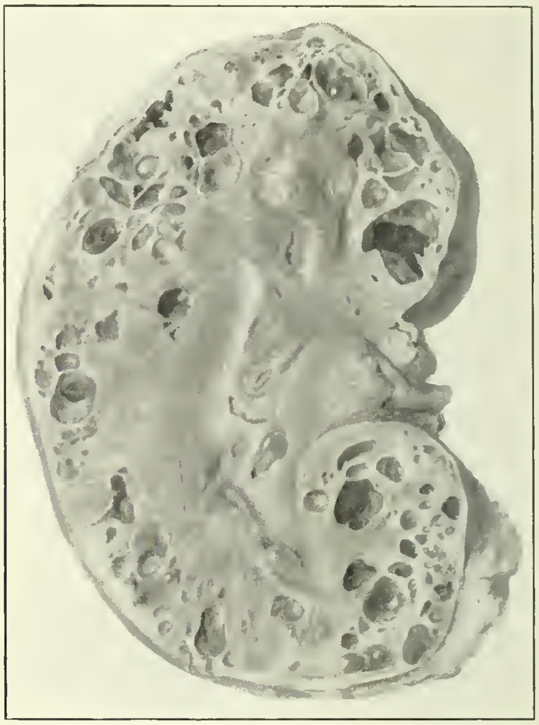

Fig. 2. Cross-section through a polycistic kidney, showing a large number of cysts in the cortex. Same as Fig. 1.

Occasionally, one or more of the cysts may attain a size sufficient to cause great discomfort from pressure and various reflex disturbances, and, if the patient's condition permits, surgical interference is advisable. This type of disease is well illustrated by the following cases:

Case a49,702.—Female, aged 47 years. No previous history of any importance. Patient consulted on account of a tumor in the right middle abdomen which had been discovered by the home physician in a routine examination a few days before coming under observation here. For some months the patient had had spells of headache, nausea, vomiting and anorexia, lasting two to three days, and during this period there had been a slight loss of weight and failing strength. There were no severe colics or urinary symptoms.

On examinaton the mass was found to fill the lower abdomen up to the umbilicus, extending higher on the right side, with a separate, irregular, nodular tumor in midline, movable with respiration and giving an impression of a cystic kidney. Yet the situation and size of the larger tumor suggested a pelvic origin, and the patient was submitted to operation with a diagnosis of ovarian cyst.

Operation, March 6, 1911. An anterior transperitoneal incision was made and the tumor was found to be a cyst of the right kidney the size of an adult head. The remainder of the kidney and the kidney of the opposite side were filled with cysts varying in size from a hemp seed to an orange. The cyst forming the tumor was emptied of about a quart of fluid and partially enucleated; the remainder of the sac was sutured into a stab-wound, and a piece of rubber tissue left in the sac cavity as a drain. There was no drainage of fluids, and the drains were therefore unnecessary. The patient made an uneventful recovery.

Case a56,036.—Female, aged 29 years. Previous history negative. January, 1911, while skiing, the patient sustained a fall, and, after walking home, had severe pains of a stabbing character under the left costal margin through to the back. She was in bed for a month following, with pain through the left abdomen. There was a board-like rigidity of the left abdominal wall extending to and limited by the linea alba. About two weeks after the onset the rigidity began to disappear, and then a mass the size of an orange could be palpated in the upper left quadrant. There was no discoloration of the skin and no hematuria. Marked anemia and weakness were associated with the attack. Following the acute illness up to the time of consultation, some five months later, the patient had had fair health, but the mass persisted and gradually increased in size, accompanied by a more or less constant pain in the left side and in the left leg.

An examination of the tumor in the abdomen gave the impression that it was of kidney origin; that it was about the size of a child's head, nodular surface, firm, and slightly tender to touch, but did not move perceptibly on respiration. The urinary findings were negative other than a trace of albumin. Cystoscopic examination and a radiograph of the kidney with the pelvis injected with colloidal silver demonstrated a rather irregular pelvis, yet nothing typical, sufficient, however, so that, with the history, the situation, and the character of the tumor, a provisional

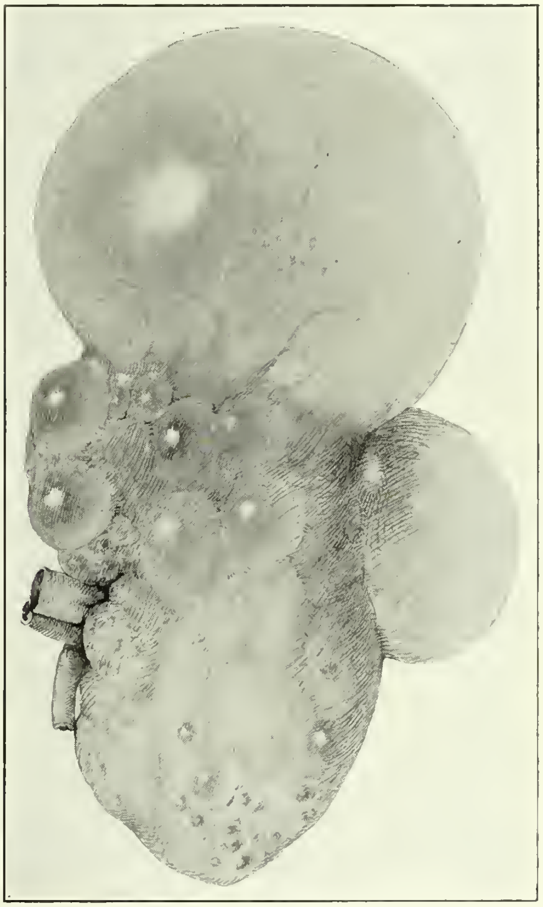

Fig. 3. Diagrammatic representation of polycistic kidney. Note the difference in the sizes of the cysts, ranging from the size of a grape-fruit to that of a pea.

diagnosis of incomplete rupture of the kidney was made.

Exploration was advised. An incision was made through the outer border of left rectus, and the mass exposed by incising the posterior peritoneum on the outer side of the descending colon. Examination of the tumor showed it to be a cystic kidney, the cysts varying in size from a grape-fruit to a pea. Four of the cysts in the lower pole were filled with old hemorrhagic products, and those in the upper pole with thin, clear, straw-colored fluid. The larger cysts were opened and emptied of contents, reducing the bulk of the tumor by three-fourths. Drainage was provided for by three cigarette drains. There was no drainage of fluids following operation. Exploration of the right kidney showed it to be involved in a similar process though to a much less degree, yet a nephrectomy of the more involved kidney could not be considered.

The patient made a satisfactory recovery and left for her home some three weeks after operation.

Cases such as these, however, are rare. It is true that nothing in the nature of a permanent cure can be accomplished by surgery in the double polycystic kidney. The hospital records for the past fifteen years show a number of these cases with exploration to clear up the diagnosis in a few. Even an exploratory operation may be fatal, as was the result in the following case:

Case a38,693.—Male, aged 60 years. History of having at times passed blood in the urine since his first illness in June, 1908; frequent micturition and dull pain over the right kidney. The attack at that time was quite severe, keeping him in bed for some fourteen days with protracted vomiting and marked evidences of uremia. Up to October, 1909, there was no complaint, but at that time he had another hemorrhage lasting over a period of two days, and another a week later. From that time until he came under observation he had but little trouble and was even gaining in weight, although a tumor was present in the upper right abdomen. Based upon the physical examination, the cystoscopic findings and colloidal silver radiography, the mass was diagnosed as being undoubtedly renal. The urine showed low specific gravity, moderate polyuria, a trace of albumin, and casts. On account of the apparent limitation of the trouble to one side and the belief that the tumor was a neoplasm, the patient was submitted to an exploration, but it was found that the tumor was a polycystic kidney and that there was involvement of the left kidney in the same process. Notwithstanding that nothing further was done, kidney insufficiency ensued and about three weeks after the exploration the patient died from uremia. Such a case shows that even when the disease is apparently limited to one side, an exploration is not devoid of danger.

These cases are important from a surgical point of view. The tumor, which, as a rule, is felt only on one side, with such symtoms as bloody urine, pain, loss of weight, etc., appears to demand early removal, and the diagnosis of tumor of the kidney is readily established. The presence of albumin and casts is easily accounted for by the involvement of the parenchyma of the kidney by pressure. It is necessary, therefore, to have this condition in mind, and a careful examination of the opposite side may show nodular enlargement of the other kidney. Should the condition not be diagnosed until an incision has exposed the cystic nature of the disease, the opposite kidney must be explored, and almost always it will be found involved.

Nephrectomy, therefore, is contra-indicated, and the large number of deaths reported in the literature on the subject, following removal of such a kidney, emphasizes the fact. Rovsing has published a small group of cases in which he has opened and drained a number of the cysts with reports of good results. Yet it is difficult to see how benefit can be derived from this procedure unless the cysts are large and interfere mechanically with function of the kidney, as in the cases above. The reported death after simple exploration is sufficient evidence of the necessity of avoiding operative procedures if possible.

DISCUSSION

Dr. A. A. Law (Minneapolis): Dr. Balfour's most excellent paper has left very little for discussion. The best sentiment among the majority of surgeons in these cases of cystic degeneration of the kidneys is that they are largely not operative cases. In most of the cases, in order to clear up the diagnosis, exploratory operations are made; yet the fact remains that the greater number of these cases have been found at autopsy. Bevan found this condition was bilateral in ninety-nine cases out of a hundred. Bovee found the condition unilateral in but three cases in doing nephrectomies; considering this fact, the question of operation should be almost eliminated.

In regard to diagnosis: The literature speaks of cases that have been recognized, but it would seem that modern methods have not yet cleared up this condition. The study of the literature, however, has done one thing. It shows the trend of opinion of the various pathologists, as well as of the internists, as to this condition, and they are very much at variance in regard to its etiology. Virchow and Bovee affirm that heredity is a very large factor in producing this condition. Schnecker records four cases in families of three or more children where this occurred. There are a number of cases recorded where the disease was transmitted by the mother to the child and by the father to the child, and then it sometimes skipped two or three generations.

As to the congenital theory: In a study of two hundred cases it has been found that 90 per cent were congenital. Nineteen per cent of all the cases that came to the autopsy-room showed a cystic degeneration of the liver and other organs, and the fact that so many of these infants have cleft-palate, harelip, and club-foot all lends its weight of evidence to this theory, and is of much value to surgeons who are in the dark as to which theory to accept. The occlusion theory, the theory which holds that this condition is the result of hyperplasia of the connective tissue pressing upon the tubules and papillæ and hence is the cause of the retention cyst, has its champions. The theory of fetal inclusion is a theory that is receiving a good deal of adherence and is a fascinating one, but remains to be proven still. Yet with the mass of literature written upon this subject, and the few clinical cases to study, surgeons are still much befogged as to which etiological factor to accept. They are definite, however, in the conclusion that these cases are inoperable save in rare instances where a cyst is drained to relieve pressure and prolong life.

Dr. J. E. Moore (Minneapolis): This valuable contribution to surgery is entitled to our consideration. It brings forcibly before us the fact that this congenital condition involves, in all instances, both kidneys. No longer than a year ago this summer a surgeon of considerable repute read before the Surgical Section of the A. M. A. a paper in which he advocated nephrectomy. As brought out here, in the paper and in the discussion, nephrectomy is not warranted, and that was the concensus of opinion of surgeons present on that day.

Ordinarily, the diagnosis is the point of principal interest to the surgeon, and it may not be easy to determine that such a condition does prevail, because it is not a common condition, but if every surgeon will search his memory he will find that he has met this condition and has operated upon the patient when he should not have been operated upon. In one instance I operated on a patient several years ago with a diagnosis of ovarian cyst. On operating I found a large cyst present in the pelvis and abdomen, but I was surprised to find the pedicle extending up to the kidney. Had I been content to remove that cyst my patient might have lived, but I operated on the kidney, and my patient died in a few days of thrombosis of the vena cava.

In some instances these cysts have become infected, in which case the surgeon may open up and drain and thereby prolong the patient's life.

We are much indebted to Dr. Balfour for presenting this important paper to us.

Dr. Balfour (Essayist): I think there is nothing further to add in reference to this condition. I would like to thank Dr. Law for the trouble to which he has gone to look up the literature, and also to thank Dr. Moore for his discussion.

The question is interesting in many ways. It is quite true that only one kidney is markedly enlarged except in later cases. As to the origin of these cases we have no opinion to offer, but it is very interesting to read the ideas of different men. The condition has been investigated by different men and by different pathologists. The general objection to the congenital theory is that there are so few instances found between infancy and the age of twenty-five. The condition between those ages is practically *nil.* Another interesting fact is its occurrence in middle life and while degeneration of other organs is going on and when it is most likely to occur.

ROUNDERS*

By F. W. MacManus, M. D.

BUFORD, N. D.

I dare say there is not a physician in the room who does not occasionally review some of the cases that have passed through his hands in the years that are gone, and I venture the assertion that it is not time wasted. Although a man may not add a cubit to his stature by taking thought, he can, if sufficiently forethoughtful, add to both his stores of lore and of lucre, and a comparison of the older with the newer methods becomes bilucrative.

Occasionally, we recollect a patient whom we have been able to succor, who paid us and went rejoicing on his way,—an exceedingly satisfactory condition. Some of them have passed to the hands of other physicians without paying us, which left no pleasant sensation. Some have gone to other parts of the country promising a fit return after the lapse of time. Of these we still have some hope; but others still have passed to another country without leaving their addresses and their exact whereabouts we shall never know until we have passed that way ourselves. I feel perfectly safe, yea, happy, in saying that not one of us would care to go where we *hope* some of them are, even for the sake of a goodly-sized bill.

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*Read at the 24th annual meeting of the North Dakota State Medical Association, Fargo, May 9 and 10, 1911.

Sometimes these cogitations take a pleasant turn, as we recall a time when we were aroused from a state of perfect rest to attend a woman in confinement, were able to reach the bedside in time to assuage the greater part of the suffering, and lay a living babe beside the mother before she awoke to consciousness.

But these reminiscences do not always provoke a smile of satisfaction. You will recall one or two old-time patients who came into your hands by one of the many and various ways which some of this class of patients travel, who remained with you for a time, and then passed on, leaving no gleam of satisfaction, either financially or professionally. The passing of such a patient is necessarily unsatisfactory. If he paid the required fee willingly without receiving that which he sought, it remains unsatisfactory; but if, as sometimes happens, the patient be not benefited and pays the fee grudgingly, it leaves the physician conscience-smitten, and that is the most unsatisfactory state of all. There is probably no other condition in medicine, especially among the unseasoned timber of the profession, that is more well-calculated to breed regret than the memory of having searched for another man's ailment with one hand and his purse with the other, the latter only coming off successfully. I believe it is to our credit that, as a profession, we hold a good and wholesome contempt for that class of men who make such their life-work. How they can enjoy their ill-gotten gains here is more than the average physician can understand; and, if there is such a thing in the universe as justice, they certainly cannot have much pleasure with it hereafter.

One such case, nearly parallel, always recurs to my mind when thinking in this strain,—a man of fifty-eight years of age, who complained of habitual headache. Instantly a long array of anticephalgics marshalled themselves before the mental vision, but it was deemed advisable to question him a little, more for the sake of impression than of any other point to be gained, for, being fresh from school, I thought a headache a very trifling affair. I had at least a dozen remedies at my tongue's end, and one of them would surely do the business; but I soon found that he had taken practically all of my favorite remedies and had received no benefit. Not only had he taken all the remedies, from the worst to the best, but he had taken them in the most approved manner. Of course, this knowledge led to perplexity and doubt, but Taylor's "Hand-book of the Practice of Medicine," which, by the way, was the only work on the practice of medicine in my library at that time, was searched for more remedies until long into the night. Again and again I referred to his symptoms, which I had copied on the fly-leaf of my ledger, trying to find a set of symptoms, a syndrome, that would fit his case, but, for some unaccountable reason, the same could not be found. I then tried to find some newer remedy, but could find none that appealed to me as the proper remedy, so I resolved to prescribe according to my first conviction, which was that his headache was due to the indigestion of which he had made mention. Accordingly, when he called the next morning, he was given a bitter stomachic tonic as a curative agent and a coal-tar derivative for the immediate result, and was sent away with a full assurance that he would soon find the relief he was seeking. As a matter of fact, he did get some relief, but it was neither full nor satisfactory. At the expiration of three weeks, he returned, stating that his headache was really worse than before, and it was then revealed to me that I had made a good guess, but had missed.

At this visit I took occasion to observe him a little closer than at the former. He had served through the Civil War and had acquired a soldier's vocabulary, which he could, and did, wield fluently and on slight provocation. Temperamentally, he was pitched at high C all the time and was very much given to controversy. He was very quick in action and exceedingly irritable, so much so that one was obliged to be very careful in questioning him, in order to avoid arousing his propensity for high-pitched discussion. I ascertained that he was passing more than an ordinary amount of urine, but I am unable to state the exact amount. He also had occasional vomiting, but these latter symptoms were put aside as being of minor importance.

Making a mental survey of the etiology of headache, I took into consideration the volume and force of the blood. It could not possibly have been due to anemia of the brain, for the pulse was full and strong—just how strong, I never knew; yet, like Robert Burns when speculating on his probable post-lethal condition, I could now make a close guess. That it was not a congestive headache, was proved by the clearness of the conjunctivæ and the complexion. It could not have been due to uremia, for he was passing more than an ordinary amount of urine, and there was no history, as I then understood it, of gout, rheumatism, or diabetes. It was not toxic, because he had never been a worker in paints, minerals, or other poisonous substances; nor did he use alcohol or tobacco. That it was not due to a neuropathic state, such as neurasthenia, epilepsy, chorea, hysteria, or neuritis, was self-evident, and he was never obliged to use glasses, except when reading by artificial light.

Still clinging to the theory that the headache was due to indigestion, I eased off a little on the bitter tonic and prescribed an aid to digestion (some form of pepsin), and gave a brisk cathartic in place of the acetanilid compound. This form of treatment was followed for about two months, at the end of which time he informed me that he was feeling very much better, but was so weak from the effects of continued catharsis that he was scarcely able to drag one foot after the other. He was advised to forego all forms of treatment for a spell, in order to judge better of the permanency of the result.

I saw nothing of him for a month. When he returned he was complaining of more headache than ever. Of course, it was discouraging, but he was ordered to take up the last form of treatment, continue it for two weeks, with a rest of one week, to be followed by another period of two weeks treatment, to cover, in all, a period of three months. He was to report occasionally that I might note the result. At his second subsequent call, which covered a period of some six weeks, I was actually ashamed to ask him to continue the treatment. I stopped the cathartic entirely and gave a mild diaphoretic, continuing the pepsin mixture, which was to be followed for a month by way of trial.

By this time, I began to have a sneaking idea that his headache was due to uremia despite the fact that he was passing more than a normal amount of urine. I think that I arrived at this conclusion more from the continued low specific gravity of the urine than any other more acute deductive reasoning, and it was thought scientific, if not reasonable, to put on the blower a little by increasing the blood-pressure, being in exactly the same state of mind in which Bill Nye found himself when trying to prove that the red man was at peace, by saying, "The pirogue is lying idly on the shore. I don't know what a pirogue is, but it is lying there idly on the shore." I did not know what the blood-pressure was, but was sure that it ought to be increased. Accordingly, a cardiac stimulant was added to the pepsin mixture, and he was sent away for another trial period.

The very next day I was summoned in haste. I found him in a dreadful plight. He was complaining of severe cardiac pains, and his respirations were exceedingly laborious. Of course, the difficulty was recognized at once, the cardiac stimulant was withdrawn, and a morphine-nitroglycerine hypodermatic administered, which had the happy effect of relieving him in a few minutes.

I could not take the chances of prescribing again for that man, thus probably increasing my embarrassment, and I told him as much. I had reached the end of my tether. He drifted. He had come into my hands through at least half a dozen other physicians; had dallied with me for more than two years, left a few pieces of money, and departed.

I was very sorry to lose that patient, not so much because he represented a large percentage of my income for the first two years of practice, as that I disliked to acknowledge defeat. However bitter the pill, it was swallowed, and the patient invited to continue his vocation of rounder, going from one physician to another, vainly seeking some elusive elixir.

You will have already surmised that I had a few thoughts coming in the way of deductions drawn from this failure, and you are quite right. I began on them right then and there. Summing the whole question up, I realized that I had treated him without knowing exactly the end I had hoped to gain or the means by which it was to be attained. In other words, I had made a mistake in the diagnosis, if, indeed, I had made a diagnosis at all. Never before had I realized the importance of making a correct diagnosis, at least, of having some definite point in view before beginning the treatment of any case. This matter has been hashed and rehashed so much in the medical literature that it would seem superfluous to bring it up again, but it is my opinion that it is a thing that cannot be preached too much. How is a man to know the manner by which an object is to be attained unless he has previously formed some conception of that object? I think the point very well illustrated in the story of the Scotch boy who seemed to have the privilege of the grounds of Eglinton. One day, the earl discovered the fellow who was just in the act of mounting a wall preparatory to making a short-cut across the demesne. The earl called to him, "Hey, sir, that is not the right road." Upon which, the boy asked, "Div ye ken wheer ahm gaun?" "No," replied the earl. "Then hoo the de'il d'ye ken whether this be the richt road or no?"

Just as often as I have wondered how many of us have entertained these unwelcome thoughts and recollections in regard to certain cases we have treated, I have wondered if there are any of us who have not. How many cases have we reviewed in retrospect that we have treated diametrically opposite to their indications? I freely admit that I have had many of them, and the recollections of the same are still with me. Perhaps there are many more which I have not as yet recognized, and which were so treated, but, while keenly regretting these facts, I have not the slightest doubt that many of you, if not all, have had the same breed of ravens roost on your window-sills croaking ignorance, carelessness, and dereliction in certain cases, until you become so surcharged with chagrin, shame, or a sort of remorse that you administer to yourself a swift mental kick, a feeling very akin to that of Aunt Polly, who, after witnessing a gaiety dance in a New York playhouse, said shame caused her to undress that night in the dark.

I have made the foregoing confession with the object of making clearer the reason that certain patients become *rounders,* or whatever you may choose to call them. I have elected to call them "rounders" because of their gyratory movements. They will go from one physician to another and another, until, at last, being limited by reason of days, inclination, or for financial reasons, they almost invariably drift back, like a hounded deer, to the beginning, if both patient and physician live long enough.

Every physician in the room knows the rounder and has probably asked himself a reason for his being, but has not thought the question of sufficient importance to ask others. Neither have I been asked, but I am going to give an opinion the same as if I had been. It is my candid belief that a rounder is caused as much by the physician as by any inclination of the patient. In the case related, I know it was ignorance and carelessness, and it is with feelings of the profoundest gratitude for the goodness and tolerance of the people among whom I practiced that they did not take me out and decapitate me. When I recall the benign carelessness with which I treated some of my cases, it causes me to marvel and shudder, marvel that I had such a monopoly of asininity as to practice medicine at all, and shudder that I necessarily must have narrowly escaped destructive violence at the hands of some of them, or been relegated to "innocuous desuetude" by all, which would have had the same ultimate effect.

Of course, what I have said relates to times past. We who have gone through these experiences of twenty years ago, are happy in knowing that they exist no longer, necessarily. The methods of physical diagnosis in vogue today are very nicely calculated to leave no one in serious doubt as to his diagnosis if he but makes proper application of his teaching. Making a correct diagnosis is, then, I take it, the great object in the practice of medicine,—the one element of sport in the entire profession; and a correct diagnosis can be reached only through a convergence of deductions drawn from subjective and objective symptoms, observation, and chemical and mechanical applications. When they all focus on or near one point you may rest assured that your diagnosis is not far from right.

During the last three years I have kept the records of nearly all my patients, not alone for present study, but for reference and comparison. From among them I have selected six cases whose symptoms correspond almost exactly with those of the case related, but which, I believe, I have been able to interpret more intelligently, certainly with a great deal more precision and therefore with more personal satisfaction, and have, as well, been more beneficial to the patients. There is no question that 1911 methods of physical diagnosis give the patient more for his money than those of 1900, or the older "rules o' thumb" methods.

Case 1.—The first of my brief series is a male, fifty-four years old, very spare, the skin hanging in loose folds about his face and neck, his hair almost white, his face having the appearance of tan-colored leather. His gait was uncertain, being more indicative of age than his facial appearance, if possible. He came to me two years ago last July, complaining of an exasperating cough accompanied by much foul expectoration. It was ascertained that he had periodical headache of a severe type, not a very good appetite, always vomiting after a full meal, constipation for two or three days together, then a period of from two to three weeks of diarrhea, but these were all laid aside, made secondary to the cough and expectoration, which always bothered him on retiring, but more especially each morning. He also had night-sweats. Obtaining a specimen of the sputum, as thorough an examination was made for tubercle bacilli as was possible, but none were found. There were no zones of consolidation, no history closely related to tuberculosis, and there were no other symptoms of tubercular infection; but, to make sure, another specimen of the sputum was sent to a friend in St. Anthony Park, Minn., who also reported it negative as to tubercle bacilli. Percussion notes were pitched high over the entire lung area, the chest having the peculiar "barrel" formation. These facts strengthened the belief that the cough and expectoration arose from the bronchitis of emphysema, and I began to cast about for the associate diseases or conditions as correlative evidence.

At that time the urine was not voided in regular amounts; but the total amount was not uniform when taken for several days together. Occasionally, a small amount of albumin would appear, rarely more than a trace, the specific gravity varying with the amount of urine passed, but not in due proportion. At times, when the amount of urine was double the normal, the specific gravity would decline to 1003 or 1004. When the total amount for twenty-four hours fell to near the normal, the specific gravity would rise to 1012 or 1014-1015, the general average being somewhat like 1010 on account of the preponderance of days when the urine was passing at the rate of 65 to 80 ounces a day. It always contained granular and hyaline casts and an excess of indican, the latter being attributed to the purulent condition of the lungs and the exhaustive diarrhea mentioned.

The blood examination resulted as follows: pressure, 170mm. to 180mm.; erythrocytes, 3,250,000; leucocytes, 18,000, the polymorphonuclear variety being in excess of the normal, or about 70 per cent of the total leucocytes; color-index, 80; specific gravity, 1052; a slight poikilocytosis, but not enough to be of serious moment. The clot was slow in forming, but the time was not recorded. There was cardiac hypertrophy, the apex reaching a point an inch below and two inches to the left of the nipple; dullness an inch to the right of the sternum; and there were strong abdominal pulsations. The impulses were very forcible, the movements of the chest-wall being plainly visible at twenty-five feet through the clothing. The second pulmonic was strongly accentuated, and there was a systolic blowing sound which amounted to a positive thrill. Contrary to the usual findings in emphysematous chests, the heart seemed to be lying in its normal relation to the chest-wall, all its sounds being perfectly audible, instead of distant and muffled.

The stomach-contents, after an Ewald test-breakfast, gave the following: total acidity, 20; no free hydrochloric acid and only a faint trace of lactic acid; pepsin, rennin, and other digestive ferments present in diminished quantities; a decrease in all the gastric secretions, a hypopepsia. The stomach was dilated to the level of the umbilicus.

The sphygmographic tracing shows a pulsus tardus, a slow rise to the initial impulse, a broad apex, and a slow fall. One symptom which one would naturally expect to find in such cases, is absent; at least, it is not recorded, but the omission may have been due to a faulty application of the instrument, as I was not very well acquainted with it at that time. This will be mentioned later.

Case 2.—The second of the five cases is a French-Indian, who presented himself complaining of a continuous headache. He had vertigo, occasional vomiting, a slight blurring of the vision, insomnia, and an almost constant desire to urinate. He is a man of forty years, well nourished, is not irritable or nervous, but has the happy faculty of taking life as it comes. He weighed 180 pounds, but is losing flesh and aging very rapidly. He has never been addicted to alcohol and disclaims any constitutional disease.

The physical examination was begun with the urine, and showed that he was passing between 75 and 100 ounces daily, of low specific gravity, light color, limpid, flat odor, and faintly acid. It contained no albumin, no sugar, and no indican in excess, as in the former case, but had abundant granular and hyaline casts and renal epithelium. Its specific gravity was 1015.

His chest was well formed, round and full, and the percussion-notes fairly high pitched; the heart-sounds somewhat muffled and distant; and there was scarcely any movement of the chest-walls in respiration, and no perceptible lung-excursion.

His erythrocytes numbered slightly more than 4,000,000; the leucocytes, 11,500; the color-index was low; the specific gravity, 1050; the blood-pressure, 172mm.; the sphygmographic tracing showing as pretty a picture of a pulsus biferiens as one would wish to see. This was what one would expect to find in the first case, but failed to get it recorded, if present.

Analysis of the stomach-contents after the test-breakfast, gave no trace of free hydrochloric acid, the presence of lactic acid, and a total acidity of 18. Pepsin and rennin were very deficient. There was no dilatation of the stomach, so far as I was able to discover, but there was a gastroptosis,—a visceroptosis to some extent.

He had chronic bronchitis, but, owing to the fact that he was a cigarette fiend, little attention was paid to it other than to ascertain that the sputum contained no tubercle bacilli. His temperature and pulse were both low, while the respirations were 30.

His eyes showed a strong suggestion of arcus, the grounds were slightly turgescent, but there were no other symptoms of retinitis, except the blurred vision, which is not always present nor very severe when present.

Case 3.—The third case was a man of sixty-seven years, extremely emaciated, having very prominent facial angles, the temporal blood-vessels being prominent, tortuous, firm, and knotted; his gait was uncertain; his abdomen very pendulous and flabby; and he walked with a decided stoop. His complaint was polyuria. When the total amount of urine was collected for twenty-four hours, it was not found to be very excessive, being but sixty ounces, but it was highly acid and had a strong ammoniacal odor. The specific gravity was 1034, and it contained 1 per cent sugar by Fehling's fermentation, and differential-density tests. In comparing this urine with other diabetic urines of known percentages under the phenylhydrazine test, the crystals seemed to be more numerous than the others and just as large. I do not know whether others have discrepancy, yet, I believe, it indicates a fineness, noted this difference, and while it may be a trifling a coarseness, or some other quality of the glycosuric secretion which will be worked out and, some time in the future, will be given its proper signification.

This man had had typhoid fever at the age of twenty, and, seven years previous to the time I became acquainted with him, he had passed a large number of gall-stones, which he was pleased to carry around with him to exhibit to the different doctors with whom he came in contact.

Nothing distinctly abnormal was discovered in the blood-examination, the red and white cells being about normal in number, form, and relation to each other, and the specific gravity was 1054. The blood-pressure was high, being 170mm., the sphygmograph showing a slow rise to the initial impulse, a broad apex, and a slow fall. The right side of the apex was considerably higher than the left, showing quite a notch, a mere suggestion of the second case. The rate was also slow, which may not have been abnormal for this case. There were a harsh systolic murmur and an accentuated second pulmonic, the other heart-sounds being nearly normal. Instead of saying "nearly normal," it would be better to say that they were trying to act in concert.

Analysis of the stomach-contents proved a hypopepsia, the total acidity being 12, all the other gastric secretions being correspondingly deficient. No sign of malignancy could be found, save a trace of lactic acid; no tumor; no sarcinæ; no occult blood; no fragments; no cachexia.

In going over this case, I accidentally stumbled on a small area of anesthesia on the outer aspect of the left foot, which caused me to look carefully for other symptoms of posterior sclerosis; but, with the exception of Romberg's and a slight dullness of the deep reflexes, which may have been due to age, nothing further was found. Although the pupils reacted to light and accommodation perfectly, and there were no lightning pains or gastric crises, yet it looked like a case of incipient locomotor ataxia. For this reason I should have liked to follow this case farther, but he soon drifted elsewhere on his rounds among the doctors, and I never saw him again, professionally, but I hear from him occasionally after he has consulted a new physician, and it is gratifying to know that he is still taking KI and gradually improving.

Case 4.—The fourth case is a man who has spent his life among the cattle on the plains, from the Missouri River in South Dakota to the Rockies, from Texas to Canada. He has been a hard drinker for a number of years, has undergone every form of hardship and exposure, and he had so far succumbed to the vicissitudes of his calling that, when I first saw him, at the age of thirty-eight, he had all the appearances of a man of fifty-five or sixty.

The only reason he gave for seeking medical advice was a developing jaundice. He recognized the fact that he was losing flesh and strength, and was aging rapidly, but he attributed everything to his jaundice. When questioned he admitted that he had dyspepsia—a diarrhea alternating with constipation, backache, headache, and dizziness, but the only thing that worried him was the ever-increasing jaundice, for that, he knew, was not normal. If jaundice had been the local custom he would have considered himself a healthy individual, so little importance did he attach to the other symptoms.

It was elicited that his daily meals had been composed of salt beef and pork, potatoes fried or, rather, boiled in grease, sour-dough biscuits or "dough-gods" for bread, sodium-benzoated tinned goods, and black coffee of which he always drank from two to four cups at a meal. Alkali water all the time and all the whisky he could consume at sundry and frequent periods had done the rest. He was a physical wreck. His body was thin and angular, his countenance pinched, his face, neck, and hands exceedingly wrinkled for one of his age. He was very nervous and irritable, always harboring a grouch at something or somebody, could not eat well, and did not succeed in digesting what he managed to swallow. He did not sleep well and would not, if he could, evidently fearing that some one else would be resting.

The stomach-contents showed but the faintest trace of free hydrochloric acid, a total acidity of 10 and lactic acid present. The stomach was dilated to twice its normal capacity, and the liver was large, but smooth and not at all sensitive.

The urine contained both granular and hyaline casts, very little renal epithelium, and no blood. The total amount was 120 ounces a day, the specific gravity ranging from 1010 to 1015, yet containing almost 2 per cent of sugar, as well as the other symptoms of diabetes, polydipsia, polyuria, polyphagia, emaciation, dry harsh skin, and loss of sexual

I have omitted to say that indican in excess was a prominent feature of this urine.

The apex beat extended to two inches to the left of the nipple and half an inch below it; there was dullness to the right of the sternum for an inch or more, and well down into the xyphoid space. Its sounds were exceedingly muffled, so that the beats sounded as if coming through a pillow. Although the heart's action was irregular and the sounds not clearly audible, this was one of the very few cases where I have been able to say that I detected the Corrigan pulse, which settled the question in my mind as to whether or not the man had aortic regurgitation.

The red corpuscles numbered 4,800,000 which is considerably below the average for those who have lived nearly all their lives in the greater altitudes. The leucocytes numbered 12,800, of which the polynuclears were present in about the proper proportion, but there were a great many eosinophiles, the significance of which I am at a loss to give. The specific gravity was 1050, and the color-index 60, which is even lower, relatively, than the erythrocytes. The blood-pressure was 190mm., the sphygmographic tracing showing a quick rise, sharp apex, quick fall, and irregularity. There being no question that the hypertrophy was due to general arteriosclerosis and that compensation was failing, he was sent East to be with his relatives and friends where he died about four weeks later.

Case 5.—The fifth case is a female, fifty-eight years old, the mother of five children, the youngest being twenty-five years old. Her father died a few years ago of apoplexy, her mother living to a good age. The patient is rather pale, especially noticeable about the lips and conjunctivæ, the complexion dark and muddy, and is possessed of a very nervous temperament. Her hair is abundant and not very gray, but her face is wrinkled far more than her age warrants. The veins and superficial arteries of the exposed parts, such as the dorsal surfaces of the hands, as well as the face and neck, are firm, prominent, tortuous, and knotted. While she is not what one would term emaciated, yet it is easy to discover that she has lost considerable flesh.

Her complaint is a cardiac pain that passes through the chest into the left shoulder or scapular region, sometimes down the left arm. These pains have been so excruciatingly sharp at times as to almost deprive her of the privilege of breathing. The respirations are hurried and are accompanied by a grunting sound, not unlike the respirations of pneumonia.

After the test-breakfast, the stomach-contents showed a total acidity of 8, not a trace of free hydrochloric acid, a small amount of pepsin, rennin, etc., but there was a considerable amount of lactic acid and some dilatation. There was no malignancy.

The blood-pressure was 220mm. at the time I first saw her. The sphygmographic tracing shows a slow rise, a broad apex, the right side being much higher than the left, and a slow fall. A blood-count was not made, so that the relative number of corpuscles was not determined.

It may be mentioned that she had diarrhea at the time of my first visit and had had for some time previously, on account of her inability to digest food properly.

Case 6.—The sixth and last case was a man of sixty-two years who complained of a general swelling. He sent me word to call upon him when I should find it convenient, either that day or some other time, as there was no hurry, but, learning something of the nature of his case, I went as soon as possible. I found him sitting in a chair where he had taken his rest for several days, leaving it only as occasion or necessity demanded. His temperature was 97.5°, and pulse-rate 42. The heart-sounds were all but inaudible; the chest very heavy and round, not expanding with respiration; and no lung excursion whatever so far as could be detected. His body, upper and lower limbs, hands, feet, and face were edematous, a condition of general anasarca. The eyes were suffused, his lips bluish, and the superficial veins and arteries were very prominent, unyielding, crooked, and knotted. The specific gravity of the urine was 1025, no albumin, no sugar, but contained numerous granular and hyaline casts, renal epithelium, and blood-cells. His blood-pressure was 230mm. He was never addicted to alcohol in any form and denied ever having had any specific disease, but had for the last eight or ten years been exposed to inclement weather immoderately and hard work all his life. He was sent back to Illinois where they found him one day, some three or four weeks later, sitting in his chair, dead. His complaint had been the general anasarca and shortness of breath, otherwise, thinking himself in very good physical condition; in fact, he told me the day he left that it seemed hard that a man feeling as good as he, had to die.

I have purposely omitted giving the treatment of the last six cases for the reason that any physician who is capable of making a correct diagnosis may be safely trusted with the treatment.

I have chosen these six from among a number of kindred cases because of the dissimilarity of the subjective symptoms while the objective symptoms corresponded so closely, considering all the facts. The first complained of cough with expectoration; the second, of a continuous headache; the third, of polyuria; the fourth, of jaundice; the fifth, of cardiac pains; and the sixth, of anasarca and shortness of breath. Every one of them had cardiac hypertrophy, interstitial nephritis, deficient digestion, high blood-pressure, almost typical Gull and Sutton's disease.

The first four were rounders at the time they came to me, and two of them are still following their vocations in other parts of the country, the fourth and sixth are dead, and the other two are still under treatment. The first four had consulted an unknown number of physicians, pursued the prescribed treatment for a time, and then passed on. They had been treated for a number of years for the special symptoms which they had peddled from office to office, from town to city, from one city to another, and from one state to another, and it is no matter for great wonder that they had received no lasting benefit from such spasmodic and heterogeneous treatment.

Of course, every one of you has already formulated a curative suggestion for these wanderers, a method of bringing them to toe the straight line of duty toward their physicians, but, did you ever stop to consider that they have exactly the same right to criticize you and your methods? They may not like your methods of diagnosis and treatment any better than you like their migratory proclivities. The blame thus remains equally divided, but, if we earnestly endeavor to remove our share of it, even the effort will be understood by them and have a tendency to hold our patients the closer.

Such cases as I have outlined are not difficult to diagnose, once you have the evidence in hand, and I consider it the physician's duty to get that evidence, which is so necessary to the sane and scientific treatment of any case coming to him for relief. Close acquaintance with a patient for twenty years is not sufficient excuse for making a cursory, superficial examination. We have not done our whole duty until we have exhausted our every means in trying to get at the root of his malady. When we see such men as Osler, Tyson, Loomis, Edwards, Musser, Lichty, and Hoover, as well as hundreds of other really great men in the profession, so careful, patient, painstaking, and exact in the examination of charity patients in their clinics, we ought to consider how much more it behooves us to be careful and avoid making "snap diagnoses" and jumping at conclusions too hastily.

Of course, it does not necessarily follow that a man must have arteriosclerosis simply because he happens to have a headache, polyuria, high blood-pressure, an erratic stomach, or losing of flesh, but, when you have succeeded in excluding arteriosclerosis as a causative factor in any one of them, from middle age upward, you have taken a long step toward the truth; and when you have succeeded in stopping a chronic rounder, you have done something in medicine that will redound to your credit professionally and financially.

Again, it is folly to suppose that we can hold all our patients even under the most searching and painstaking methods of diagnosis and treatment. Some of them will continue to wander away despite our very best efforts. Some of them will reason with the astuteness of the old Scotch gentleman who positively refused to undergo anesthesia in the presence of a company of surgeons until he had counted his "siller." Perhaps it would be better for all concerned if both patient and physician were more circumspect in their dealings with each other, and, while the rounder is usually considered a "penny-wise-pound-foolish" fellow by the physicians, it must not always be laid at his door as a fault that he is a rounder. We should always bear in mind the fact that we as physicians have done our part in making him what he is by careless and lax methods in dealing with him. In the first case, he would have been my patient yet, if living, but, after two years of strenuous effort, I succeeded in convincing him that his confidence was misplaced.

We may occasionally guess out a case where the subsequent treatment will bear out the conclusions, but an occasional victory does not establish the legitimacy of the practice. Making a diagnosis after treatment is like the case of the old Irishman who went into a saloon where there was a new barkeeper while the proprietor was busy in a back room. Taking a liberal drink, he replaced the glass upon the bar, saying: "Charge it." "What is your name?" asked the barkeeper. "My name's Tim McCarty." "Say, Boss," called the barkeeper to his employer in the rear room, "is Tim McCarty good for a drink?" "Has he it in 'im?" asked the proprietor. "He has," answered the barkeeper. "He is," replied the proprietor.

Tactile sensation can never be so acute that it will give a physician the exact variations of the pulse as does the sphygmograph; neither can it give one the blood-pressure in units as does the sphygmomanometer. The faculties of observation and judgment may be ever so exact and searching, but they can never give the variations of the stomach-contents equal to the test-tube and burette. The eye or the ear is never so sharp and discriminating that it cannot be aided by amplification; and we can never foretell what we may see in the post-orbital region by means of the ophthalmoscope.

According to Holy Writ there are two phases of the post-lethal condition toward which all humanity is surely, invariably, and inevitably tending. One condition is that of eternal light and boundless happiness; the other, of impenetrable darkness and ceaseless agony. We may rest reasonably well assured that, so long as we and our patients are human, we are not going to inhabit either of these places exclusively; and, just as sure as we find a former patient in this latter condition, we are going to be asked some very embarrassing questions. We are going to be asked for explanations that will make us as nervous as a grain of corn in a hot popper; therefore, it behooves every one of us to keep our lines of defense in order against that day when *we* shall be called to pass the chamber *Des Oubliettes.*

DISCUSSION

Dr. John Montgomery (Ardoch): I made up my mind this morning I would sit quiet and not say anything. The doctor's paper has added a little spice to the proceedings, and contains a number of really good points. One important point made in regard to these so-called "rounders" is this, that we cannot place too much emphasis upon the making of a correct diagnosis.

There is another point in the paper that struck me. He appealed to the country physician. I have been a country physician for many years, having entered upon my forty-fifth year. It is a misfortune for a doctor—a young doctor—to get into a large practice the first few months after he hangs out his shingle, as he has not the time necessary to make a proper diagnosis. I believe in those cases that cannot be diagnosed easily we should make an appointment with our patient to take time to go over them thoroughly. I know some very clever men in New York, Baltimore, and Philadelphia who will take an hour to go over some cases if they cannot make a correct diagnosis in less time. We ought to take an hour or even two, if necessary, and even then we may not be able to satisfy ourselves that we have arrived at the correct diagnosis of the case. I think we ought, in all cases, to get all the information we can and look up all the evidence we have in order that we may make a correct diagnosis. If we would do that we should not have so many "rounders" passing through our offices.

Sometimes we get a good deal of blame and abuse for not making a correct diagnosis, and the patient will give us a bad reputation.

We may get abuse for our treatment, even when our diagnosis is correct. This calls to my mind a very vivid experience I had during my fourth college year while acting as assistant to a physician in Toronto. One evening he got an urgent call to see a man who had tried to commit suicide.

The doctor could not go himself so he sent me. I found an incised wound in the integument over the region of the heart, but not serious. The man was suffering with delirium tremens in the usual form, and I got so near him that his breath was very offensive. I had forgotten the treatment best suited to his case, and I could not recall what would be the best thing to do. However, at that time we had a custom of carrying a powder in our grip we called a "polishing" powder. It contained 10 grains of ipecac, 10 grains of calomel and 2 grains of tartar emetic to each dose. We would start out certain cases by giving one of these powders and follow up with the remedy later. That polishing powder was all I had with me, and as I was in a hurry to get away I told him to take it and then drink about a gallon of warm water. The next morning the doctor and myself drove over to Big Jim's. For some reason the doctor did not ask me to go in, but he let me sit in the buggy outside. When he came out he was shaking with laughter and finally asked me, "What did you give him?" I said, "I gave him a polishing powder." I asked the doctor what Big Jim said, and the doctor replied that he said if he ever got his hands on that little divil he would break his neck. I asked the doctor whether it worked. "Worked?" he said, "Big Jim says it worked both ways!" (Laughter.)

I never came across the man again; however, the diagnosis was correct, and the "polishing" method of treatment so far gave relief that nothing further was necessary. But the relations between Big Jim and myself were strained to the "breaking-point."

The next case of delirium tremens came under my care during my second year of practice on my own field. Here I diagnosed the case accurately, but with vivid recollections of my former case in Toronto I adopted a line of treatment more soothing and less heroic. The man had been on a spree for a week and the hotel-keeper where he was boarding shut off his supply of whiskey suddenly. So, I suggested that it would be better to cut off the supply gradually, and ordered three doses of two ounces each of pure whiskey each day.

I called at the hotel the next morning to see my patient, and found him in the cook-kitchen singing love songs to the hired girl, and feeling very elated. He gave me a warm shake of the hand and said my treatment of his case had worked well, that he felt all right now, and added, "I done just as you told me; I took three glasses of the best whiskey a day, but 'Dock,' I took the whole three doses before breakfast."

I was very much pleased with Dr. MacManus' paper. We all get these "rounders." I am very glad to have heard this paper, for it contained many good points we can take to heart.

ALBUMIN MILK: THE TECHNIC AND INDICATIONS FOR ITS USE*

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No recent modification of cow's milk has aroused such wide spread interest among pediatrists as the "Eiweiss Milch," also known as albumin milk or caseine milk of Finkelstein and Meyer. To both of these men we are greatly indebted for recent advances in pediatrics.

Their theories and conceptions in regard to the causative factors of alimentary disturbance are widely recognized and accepted.

Albumin milk in a way represents an evolution of some of these theories, and is a practical application of them in the dietetic therapy of diseases of the gastro-intestinal tract.

A brief review of the experiments which led to the preparation of albumin milk is not without interest.

The types of gastro-intestinal disturbance that give the greatest concern are those accompanied by persistent diarrhea and by pronounced general atrophy. For these cases breast milk has in the past been the only safe recourse. This is at all times difficult to get. It was the search for a more effectual substitute than the usual cow's milk modifications which led to a series of interesting clinical experiments. A series of cases was treated with fat-free mixture, such as buttermilk or skimmed milk, to determine the influence of fat on the diarrheas. They were seldom influenced. The mixtures were particularly inefficacious in the atrophic forms. Finkelstein concluded that fat, although favoring fermentation and aggravating it when already present, was not primarily a cause of it.

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*Read at the 43d annual meeting of the Minnesota State Medical Association at St. Paul, Oct. 5 and 6, 1911.

In another series of cases large quantities of freshly precipitated caseine were added to skimmed milk with the expectation that this would probably aggravate the diarrhea. The result was strikingly to the contrary. The diarrheas were not made worse, but actually rapidly subsided and gave way to firm pale-gray stools. The action of caseine, especially the freshly precipitated, was obviously antagonistic to fermentation.

In a third series of cases the diarrheas were made to disappear by the addition of caseine. Lactose was then added to the food, and almost immediately the diarrhea reappeared. It could be made to disappear or reappear at will by alternately adding caseine and lactose.

These experiments demonstrated that lactose is apparently the principal factor in causing the fermentation, a fact which Jacobi recognized as long ago as 1886. They also brought out the other interesting fact that fat, which in all fermentative processes is poorly absorbed, is properly metabolized the moment it is given in a medium free, or at least nearly free, from lactose. Finally, a series of cases in which the various food components were added to different strengths of whey, brought out the interesting fact that sugar is tolerated better when given in dilute than in full-strength whey.

The conclusions reached were, that—

1. Sugar is primarily the cause of all intestinal fermentation. The intolerance for fat is secondary to this.
2. Caseine, if present in a large quantity, is antagonistic to fermentation.
3. The fermentative action of the sugar depends on the concentration of the whey.

These basic principles are involved in the preparation of albumin milk. In the Kinder Asyl at Berlin it is prepared in the following manner: One tablespoonful of essence of pepsin is added to one liter (1 quart) of cow's milk. The dish containing the milk is placed in a water-bath and heated to 42° C. (107° F.). After curdling, it is allowed to remain in the water-bath for one-half hour. The whey is now poured off. The curd is put into a cheese-cloth bag. This is tied at the top, hung up, and allowed to drip for two hours. The curd is then placed in a fine hair-sieve and is gently broken up with a wooden ladle. During the breaking-up process, enough boiled water is gradually added to make one pint. The curd, with the addition of water, is strained. The process of passing the curd through the sieve is repeated six or seven times. The mixture must be smooth and absolutely free from lumps. A pint of previously boiled buttermilk and one per cent of some sugar, preferably a malt sugar, are added and the preparation bottled.

It is very important that the curd should be very finely divided; in fact it should be so finely divided that the mixture has nearly the appearance of cow's milk. Finkelstein has seen recurrences of dyspepsia where the curd was not finely enough divided.

A precipitate will form when the milk stands. The bottle must be well shaken before feeding. The milk must be kept in a cool place and will keep, if properly taken care of, longer than a month.

The mixture contains approximately 3 per cent protein, 2.5 per cent fat, 1.5 per cent lactose (not counting the carbohydrate added), from 0.4 to 0.5 per cent mineral salts, and has about 450 calories to the liter.

The use of albumin milk is indicated in all intestinal disorders associated with diarrhea and in which this diarrhea has led to more or less pronounced disturbance of nutrition. It is indicated, then, in all cases of dyspepsia, in all cases of atrophy, or "Dekomposition," as Finkelstein calls them, in all cases of the choleriform type, the acute intoxications, and in all disorders due to infection outside of the alimentary tract with an associated diarrhea. It has also seemed of value in moderately severe cases of enteritis follicularis.

Albumin milk should be given either at once or, preferably, after an initial period of starvation, generally not to exceed twelve hours. It is well to begin with small quantities and then rapidly increase the quantity day by day until 180-200 gms. for every kgm. of body-weight (1 kgm.=2.2 lbs.) is reached.

For the first few days after giving the food there may not be a perceptible gain in weight. There may be even a pronounced loss. The color and elasticity of the skin and tissue may be much worse. This is due to a slight additional loss of tissue fluids which the food causes on account of its low percentage of sugar and mineral salts.

These losses are particularly pronounced in infants previously fed on mixtures rich in carbohydrates, and will, if a carbohydrate is not added early to the albumin milk, lead to grave conditions of collapse. Usually, however, the initial loss need cause no alarm. The keynote of success with albumin milk is the judicious addition of sugar. It should be added early and in sufficient amount. This becomes increasingly necessary if the nutritional disturbance is advanced.

As soon as the stools begin to be firm, usually on the third day, it is safe to add the sugar. Where the weight-losses are quite precipitate it is often the best judgment to add sugar in spite of looseness and frequency of the stool.

Depending somewhat on the condition of the stool and the weight-curve, the sugar can be increased rapidly 1 per cent at a time, until 5 per cent and in some cases even 6 and 7 per cent is reached. The latter quantity should not be exceeded.

The choice of sugar is important. Maltose and dextrin preparations give the best results. Lactose should never be used. Cane sugar will do well in many cases. It sometimes occurs in children over three months of age that, even with a maximum of sugar added, the weight-curve will stand still for days. In such cases the addition of a little starch in the form of ten gms. of wheat flour will cause a favorable and continuous gain in weight. The flour is first mixed with a small quantity of albumin milk and then stirred into the entire day's quantity.

Cases sometimes occur in which, after a satisfactory gain in weight and general favorable progress, loose stools will suddenly appear, the weight-curve will decline with alarming rapidity, and the infant will apparently relapse into a severe dyspepsia. It is bad judgment to be too hasty in withdrawing either the sugar or markedly reducing the quantity of food in these cases. They frequently occur where the sugar has been increased to 6 or 7 per cent. It is well to reduce the sugar below that quantity. More frequently, however, the cause of the diarrhea lies in some intercurrent infection outside of the alimentary tract. In that event the food neither should be reduced in quantity nor should the sugar be withdrawn entirely. Finkelstein believes that three things are principally responsible for a failure with albumin milk:

1. Inanition of the child through insufficient dosage at the beginning of the treatment.
2. Adding carbohydrate too late, or in insufficient amount early in the treatment.
3. Being too hasty in withdrawing the carbohydrate or reducing the food-quantity given at the appearance of the first symptoms of what appears to be a relapse.

The management in detail for the different alimentary disorders is as follows:

In dyspepsia give water or tea sweetened with benzosulphinide (saccharin) for six hours, then begin with at least 300 gms. of albumin milk containing 1 per cent sugar. Divide this portion into five feedings. Rapidly increase the amount of each feeding until 180 to 200 gms. (6—7 ounces) for each kgm. (2.2 lbs. = 1 kgm.) of body-weight have been reached. It is not necessary to have much regard for the appearance of the stool. If the decline of the weight-curve does not cease within 48 hours, sugar must be added up to 2 and 3 per cent. This is particularly imperative if there is threatened collapse. Using the weight-curve as a guide, the sugar is now steadily increased up to 4 and 5 per cent, in some cases even up to 6 and 7 per cent, and flour added if necessary.

In the course of treatment of a dyspepsia the sugar should never, for any cause, be again reduced below 2 or 3 per cent.

In cases of enterocatarrh or cholera infantum, give water or tea sweetened with benzosulphinide (saccharine) for 12-24 hours, then use albumin milk for one day in teaspoonful doses at intervals of from two to four hours, and in addition, give water freely. The albumin milk may contain 1 per cent sugar. Increase the amount of albumin milk by 50 gms. (1½ to 2 oz.) daily, and eventually by 100 gms., as the stool and general condition improve, until 180-200 gms. for every kgm. of body-weight are reached. It is safe to begin the addition of sugar after the fourth day. It is also well to lengthen the interval between feedings as soon as possible.

The cases of atrophy, or "Dekomposition" of Finkelstein, are treated like the dyspepsia, only in these cases the early addition of sugar is imperative.

The length of time required for the treatment with albumin milk is determined by the age of the child. In those over three months from six to eight weeks suffices. Under that age it is well to give it for ten weeks. I have seen cases at the Kinder Asyl which had been fed on it for eight months and one year with apparently very satisfactory results.

Weaning a baby from albumin milk is best accomplished by at once changing over to the substitute feeding.

The results with this food, both in institutional and private practice, have been uniformly good and coincide fully with the favorable reports from the European clinics. With no dietetic therapy in use at the present time are we as equally successful in controlling the diarrhea and at the same time feeding the child as we are with this one. A pronounced failure with the food can almost always be traced to a grave error in preparing it or to improper technic in giving it.

DISCUSSION

Dr. J. P. Sedgwick (Minneapolis): We are all indebted to Dr. Schlutz for his clear discussion of casein milk. To those of us who were taught that it is the protein or casein of the milk which is not borne in enterocatarrh, this subject is of especial interest.

Three years ago Dr. Ramsey discussed before this organization the question of fat and protein "curds." We now know that if casein does appear in the stool it is an infrequent occurrence. The work of Talbot, of Boston, and others seems to indicate that casein reactions are given by the "tough" but infrequent type of curds. That a food can be given composed largely of cheese or casein with such results after enterocatarrh, is significant. It is important that the indications for its use, atrophy and enterocatarrh should be adhered to. In certain cases of edema where carbohydrate preparations, such as oatmeal water containing a great deal of salt, have been given, we have all seen marked edema follow. It has been my experience that the administration of casein milk, which is low in salts, reduces this edema rapidly.

My results with casein milk as a substitute for breast milk from birth have not been so encouraging. I have used casein milk now for little over a year in atrophy and enterocatarrh with very satisfactory results. It is unfortunate that the preparation of this mixture is so difficult. I find it advisable in many cases to send the baby to the hospital for a few days until the mother can learn its preparation from the hospital nurse. It is also possible in some cases to instruct the mother and get the baby started on the casein milk by sending to the house a nurse who has had experience in its preparation. With care in preparation and the observance of the indications for use the results are very satisfactory.

Dr. Schlutz (Essayist): I am glad that Dr. Sedgwick mentioned the well-known effect salt has in causing retention of fluid in tissues. In this connection I would again emphasize the fact that it is important to add sugar early when you are giving a food as low in sugar and salt content as albumin milk. We must not forget that one gram of carbohydrate requires 30 gms. of water to hold it in solution in the tissues. The precipitate gains and losses Dr. Ramsey has seen with buttermilk feeding find a physiological explanation in the light of this fact.

PROGRESS IN MEDICINE

Abstracts of medical reprints and articles on file in the library of the Department of Medicine, College of Medicine and Surgery, University of Minnesota.

UNDER THE CHARGE OF

Dr. Chas. Lyman Greene

Professor of Medicine and Chief of the Medical Clinic

These abstracts are read and discussed at the departmental meetings held monthly at the University Hospital.

THE RELATIVE IMPORTANCE OF THE BOVINE AND HUMAN TYPES OF TUBERCLE BACILLI IN THE DIFFERENT FORMS OF HUMAN TUBERCULOSIS

Wm. H. Park and Charles Krumwiede, Jr.

Department of Health, New York

Journal Medical Research, Dec., 1911

This article deals with the continuation of an extensive investigation carried out by the authors in 1910 and published in the *Journal of Medical Research*. Their present findings corroborate those of their previous work and substantiate their claim that "infection with bovine tubercle bacilli in New York City and its vicinity is essentially a disease of children and a serious menace to life in infants." In the course of their investigation the organisms were obtained by injecting the suspected material into guinea-pigs, which, three to five weeks later, were killed and cultures made from tuberculous lymph-nodes and spleen. In all cases egg media were used for isolation. The value of the egg medium, in regard to its ease of preparation, its convenience, and the uniformity of its results, is emphasized. The greatest care is necessary to avoid contamination.

The observations first made by Theobald Smith in 1896 are confirmed, namely, that by their cultural properties the bovine and human types can be differentiated. This difference, however, is constant in one factor only, viz., amount and rapidity of growth in early cultures; the human type growing freely, the bovine sparsely. The authors' final results are based upon the large total of 478 cases examined. Three hundred and six were individuals sixteen years and over, and of these only one—a case of tuberculosis of the kidney—was the type of tubercle bacillus recovered the bovine. All forms of tuberculosis were included in the investigation, pulmonary tuberculosis, as to be expected, forming by far the greatest number.

In 55 cases between the ages of five and sixteen years the bovine type occurred 9 times, 8 of these being in cervical adenitis.

In 116 cases of tuberculosis in children under five years, the bovine type of the organism occurred in as many as 25, which included cervical adenitis, tuberculous meningitis, and generalized tuberculosis.

Especially interesting were the results obtained in cases from the New York Foundling Hospital, at which institution the children are all fed on cow's milk. Out of 9 cases of tuberculosis from this service 5 were of the bovine type.

The authors show that the incidence of the bovine type of infection is by far the highest under the age of three years. Around the ages of four to five years fatal bovine infection rapidly diminishes, due partly, they believe, to the increase in the pulmonary types of infection.

From a series of cases of surgical tuberculosis published by Burckhardt and quoted by the authors, the interesting conclusion is reached that in joint cases showing practically no bone-involvement, and especially in those giving a long history of infection, the type is probably bovine.

The authors believe that bovine tuberculosis is practically a negligible factor in adults. In children it is the cause of a large percentage of the cases of cervical adenitis and in young children becomes a menace to life, being responsible for 6½ to 10 per cent of the total fatalities from tuberculosis in infants. E. T. F. Richards.

THE SCHORSTEIN LECTURES ON AURICULAR FIBRILLATION

James Mackenzie, M. D., LL. D.

British Medical Journal, Oct. 14 and 21, 1911

These lectures strikingly illustrate certain phases of the more recent work in the domain of clinical research. Mackenzie believes auricular fibrillation to be the most important discovery in cardiac functional pathology. Its symptoms, he says, are clear and definite, and it usually permits assured diagnosis, safe prognosis, and rational therapy.

It occurs in from 60 to 70 per cent of the cases of serious heart failure, and its response to remedies is so distinctive as to materially modify preconceived views as to cardiac therapeutics.

Its most common manifestation is disorderly irregularity. Cases may occur which lack any history of rheumatism or marked senile changes.

Auricular fibrillation occurs in most instances where dropsy or dyspnea is associated with irregular pulse, and in those predisposed to it violent exercise may induce the condition.

Mackenzie naturally emphasizes the importance of graphic records and the newer instruments, such as the electrocardiograph, but states that these are seldom essential to the diagnosis of this condition.

The most important sign is absence of the so-called auricular wave in the jugular pulse, the impulse assuming the ventricular type.

The essential difference between the negative and the positive venous pulse is the absence of the auricular wave in the latter, and, in observing such cases, Mackenzie at first considered this due to distension, atrophy, and auricular paralysis, but later came to charge it to deficient or ill-regulated activity, suggesting lesions of the auriculoventricular node, and denominated it the "nodal rhythm."

Cushny and Edmonds, and later Lewis, established the fact that auricular fibrillation, experimentally induced, produced tracings identical with those attributed by Mackenzie to auricular paralysis and later to nodal lesions.

The significance of certain small fibrillation waves in the jugular pulse was thus explained, and nodal pulse, the pulsus irregularis perpetuus, and delirium cordis yield to the term

In "fibrillation" the walls of the auricle retain the diastolic position, auricular systole is entirely lacking, and the walls are apparently stationary, but show under careful observation areas of rapid, minute twitching or undulatory movements representing unregulated inefficient contractions.

If the ventricles pass into fibrillation circulatory stasis results and may constitute a cause of sudden death in the human subject.

In *auricular* fibrillation death does not necessarily result, as the fibrillations cannot pass along the connecting bundle.

The condition would seem to be induced by failure of cardiac nutrition, and attacks are often easily induced in the predisposed.

Mackenzie finds in post-mortems an increase of fibrous tissue and "of nucleated cells" in the muscle-walls, but no specific alterations have so far been connected with it. Once established the condition persists in the majority of instances. Rarely, it appears for a few hours, never to recur, or at intervals of months or weeks only to disappear. Many cases of paroxysmal tachycardia are due to it, but the tendency even in intermittent cases is to its gradual, permanent establishment.

The effect of auricular fibrillation upon the ventricles is not well determined. The stimuli are imperfect and irregular, but conduction is evidently not entirely lost, inasmuch as ventricular rhythm is not observed, as would be the case if one were to cut the fibers of the bundle of His. Nevertheless, the condition is associated with changes both in ventricular rate and rhythm, often evident shortly after its inception. The rate is most variable, different cases showing rates of from 40 to 130 beats a minute. Observation is usually delayed, and the pulse is then likely to be rapid. In digitalis cases it is markedly slowed. [Certain of the instances quoted by Mackenzie as showing this fibrillary bradycardia are strikingly like those commonly ascribed to the shutting off of small areas of the heart through a blocking of minor branches of the coronary arteries.]

With the onset of fibrillation, irregularity is the rule and is suddenly induced. The resumption of a regular rhythm usually indicates the cessation of fibrillation, though occasionally interrupted by a few irregular beats, due to extra systoles.

Occasionally the rhythm is absolutely regular, the rate in such cases being about fifty beats per minute. In such he infers that heart-block is present.

The heart is usually enlarged, and Mackenzie seems to think that a great part of the enlargement is due to auricular dilatation.

The condition is strikingly and, he believes, peculiarly responsive to digitalis, and he also believes that this fact has made the reputation of the drug as a cardiac stimulant.

The diagnosis is certain, he says, when a positive jugular pulse coexists with a radial or carotid pulse of marked irregularity.

In certain cases fibrillary waves appear in the jugular tracings. In the electrocardiogram the absence of the auricular wave, or its substitution by minor irregular waves due to auricular fibrillation, is clearly shown.

Clinical picture.—Subjective fluttering interrupted by "thumping" is present, especially if overexertion is attempted.

The pulse shows disorderly irregularity with varying rest intervals, and constantly varying force.

In mitral stenosis the onset of auricular fibrillation abolishes or greatly modifies the presystolic murmur, which requires auricular contraction for its production.

If a mitral diastolic element has previously appeared, whether short and separate, or prolonged and previously united to the presystolic element, this, being due merely to the flow through a greatly stenosed mitral, following systole, persists and remains the only murmur so long as auricular fibrillation persists.

The author states that, almost without exception, any pre-existing angina pectoris disappears with the onset of auricular fibrillation.

As to *treatment*, Mackenzie discusses the administration of digitalis at some length. He finds all preparations active, usually gives it by mouth in the form of the tincture one drachm daily until decided physiologic action or discomfort on the part of the patient disappears. He then stops it for a few days and recommences with smaller doses which are gradually adjusted to the individual needs of his patients.

C. L. Greene.

A FURTHER CONTRIBUTION TO THE STUDY OF RHEUMATISM

THE EXPERIMENTAL PRODUCTION OF APPENDICITIS BY THE INTRAVENOUS INOCULATION OF THE DIPLOCOCCUS

F. J. Poynton and Alexander Paine

Proceedings of the Royal Society of Medicine, 1911

Using a diplococcus obtained from the inflamed right knee-joint of a boy of fourteen suffering from a first attack of rheumatism, the authors inoculated a series of rabbits with surprising results.

The first animal received a large dose and died of pericarditis.

The second developed a polyarthritis and mucous diarrhea and died of intussusception, an end-result twice obtained and believed by Poynton and Paine to be possibly a result of the infection.

A third rabbit inoculated with the diplococcus obtained from rabbit No. 2, developed monarthritis, general illness," and diarrhea, dying on the third day. Autopsy showed an *acute* inflammation involving the middle two-thirds of the appendix.

The infective agent (diplococcus) was obtained in pure culture from the heart's blood and inflamed joint, and demonstrated in the blood-vessels, mucosa, submucosa, and necrotic mucous membrane of the appendix.

A fourth rabbit developed multiple arthritis, diarrhea, and an acute appendiceal ulceration.

Three rabbits were inoculated with a pure culture obtained from the second appendicitis victim, and one of these developed diarrhea, in addition to polyarthritis, and when killed (*in extremis*) showed appendiceal lesions.

All injections were made intravenously, and in all animals an arthritis would seem to have developed.

The authors believe that their results go far to parallel and explain in human appendicitis the occurrence of inflammation and ulcer-formation, and the death of rabbits occurred too promptly to permit the production of sclerosis analogous to those seen in chronic appendicitis in the human body.

One of these cases represented the acute perforative type, and they point out that healing would have produced the type of stricture so often seen in man.

All animals were killed when *in extremis,* and attention is directed to the rapid destruction of the diplococci by the tissues.

In all, twenty-four rabbits were inoculated. In none was a visceral abscess produced.

Poynton and Paine disclaim credit for the announcement of such cases, giving all credit to Adrian for his work, published in 1901, through which he established the possibility of producing appendicitis by intravenous injection of streptococci, staphylococci, typhoid bacilli, and the bacillus coli.

They ask that they be credited with a new contribution to the pathology of appendicitis, in that they have produced the disease by the intravenous introduction of a microörganism obtained during life from human rheumatic arthritis and passed through animals in series.

The fact that appendicitis was the only lesion produced in the alimentary tract coincides with the findings of Adrian.

They have, so far, observed appendicitis following inoculation in young animals only.

They believe—

That the inflammation starts, not within the lumen of the appendix (Aschoff), but deep in the wall;

That the midportion is chiefly affected;

That a peritonitis may develop in the presence of appendicitis even though perforation be absent;

That ballooning of the appendix, as observed in these early cases, may exist in man and favor stagnation of secretions and concretion formation;

That the association of arthritis, mucous diarrhea, and appendicitis, under the direct action of a specific infective agent, speaks against the theory of autointoxication from the bowel as a cause of human arthritis.

S. M. White.

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THE MINNESOTA STATE MEDICAL ASSOCIATION

The next meeting of the Minnesota State Medical Association will be held August 12th and 13th at Duluth. The House of Delegates will convene on the 11th. The meeting this year is earlier than the meetings of the past two years for some reasons considered by the Council.

The program committee is about to begin its work, and the same care that it has formerly exercised will be continued. If all the members of the State Association are not asked to contribute papers, it may be assumed that the committee is not showing partiality, but is faithfully trying to secure an attractive collection of subjects of interest to the whole Association.

It is to be hoped that the men from the country will make up the greater part of the program rather than make it necessary for the committee to beg the men from the cities to help them out.

The Duluth physicians will entertain the Association handsomely, as they have done before, and the attendance should be large.

SODIUM CACODYLATE IN SYPHILIS

Spivak, in an article on the above-mentioned subject, in the *New York Medical Journal* of March 2d, records his results in the treatment of 43 cases of syphilis. His conclusions are, that the drug is useful in early syphilis, but that its action is not as rapid as that of salvarsan, although accomplishing results not unlike it. The arsenic content of "606" is thirty-four per cent, while the arsenic content of sodium cacodylate is forty-eight per cent.

The injection should be prepared in a fresh solution every day and may be given in doses as high as five or six grains daily for three weeks. The human system can take in 100 grains of sodium cacodylate in three weeks without signs of arsenical poisoning, even though the drug is cumulative. There is neither albuminuria or ocular or reactive symptoms. The drug is usually given in three-grain doses, increased as the results are noted. Mucous patches and condylomata clear up, but no change in the enlarged glands is likely. On the rupia and tertiary lesions the drug has no effect. A sense of well-being and a better appetite follows the use of the drug. After a course of sodium cacodylate mercury should always be given, as the drugs seem to be synergistic. The drug does not change the Wassermann reaction. It may be used in place of salvarsan, as it is much cheaper, even though it be slower in action.

The advantages and the positive effects of sodium cacodylate have made it popular for administration. The readiness with which it is prepared and given, four grains to a drachm of distilled water and injected intramuscularly, is quite sufficient to recommend it. There is little or no pain following its use, particularly if administered in the buttocks.

The injection in early syphilis is followed by improvement in the fourth to the seventh injection, and in some cases the secondary stage seems to have been hastened.

WHOLE-TIME HEALTH OFFICER AND SCHOOL INSPECTOR

During the session of the last Minnesota legislature an effort was made to secure the passage of a bill permitting cities or counties or districts to employ a physician who would spend his entire time in the work of a health officer and school inspector, inspecting children as well as buildings. The municipality, county, or district, the Superintendent of Public Instruction, and the State Board of Health were to contribute, each, one-third of the funds necessary for this purpose. The bill, with many others equally deserving, failed to pass. The State Board of Health and the office of public instruction are still interested in the plan, and an effort will be made to try the experiment at Rochester, Minn. The Civic League of that city has taken the matter up and has promised its support, providing the City Council will finance their end of the plan.

Dr. Bracken, the executive officer of the State Board, was authorized by the Board to study public health in England and Denmark during the coming summer, but he has voluntarily given up the trip because he feels there is much to do here and that the $1,000 granted him by the Board for his expenses can be used to advance the plan outlined for Rochester. If the scheme is accepted it will be watched with great interest and doubtless will influence the coming legislature in looking at the next bill for this purpose with more kindly feelings.

Dr. Bracken's sacrifice is one not willingly assumed by many men and shows his personal interest in the welfare of the state.

STATE BOARD OF HEALTH PROBLEMS

At the last meeting of the Minnesota State Board of Health, March 19th, the question of the prevention of the pollution of the Mississippi River marked the beginning of the settlement of a state-wide problem. Minneapolis complained that the river is contaminated with sewage disposal at Anoka, and that colon bacilli, as well as typhoid bacilli, had been repeatedly found in the waters below Anoka and near the intake-pipe at Minneapolis, as well as at various other points in the nineteen miles separating the two cities.

Notices were served on the city of Anoka, and private owners who dispose of their sewage through private sewers. A hearing under the direction of the Asst. Attorney-General, Mr. Hilton, was held in the Senate Chamber, and the preliminary work was outlined. Dr. J. Frank Corbett was the only witness examined at this meeting, but his testimony, direct and cross, served to bring out a good many points that will be heard at the next meeting of the State Board in July.

The question of pollution from other streams leading into the Mississippi and of the discharge of sewage from other cities many miles away, will ultimately be considered. Incidentally, Minneapolis may be forced to adopt some method of sewage purification before its enormous discharging sewers pour their contents into the river. It is quite probable that a lively contest may be expected, although it is equally probable that a compromise may be reached, as the people understand and appreciate the necessity of adopting some means for the protection of the public health in their neighboring cities, as well as in their own.

The expense of sewage purification in small towns and cities is not a large item, but it means constant attention and watchfulness. In larger cities the expense is quite considerable unless one looks at it from a broad humanitarian standpoint.

Another problem that came before the Board for discussion and action was the Indian trachoma question.

It seems that a large percentage of the Indians are wards of the state, rather than wards of the government, hence the State Board of Health will undertake a census of the Indians and then adopt such measures as are necessary for their protection. Dr. H. M. Bracken, who goes as a delegate to the meeting of public school sanitarians at Boston this week, will spend sufficient time in Washington to acquaint the Board of the wishes of the Interior Department, in order to co-operate intelligently with them.

It is quite likely that an amicable arrangement can be made with the government officials that the whole Indian population can be brought under the jurisdiction of the State Board of Health.

MOVING-PICTURE SHOWS AS AN AID TO EDUCATION IN SANITATION

The most forceful example of what might be accomplished by moving-picture shows was demonstrated not long ago in a series of pictures showing a nursing bottle, capped by a rubber nipple and surrounded by feeding flies. As the film was moved the flies changed places on the rubber top from time to time. The pictures then showed an enlarged fly with its dirty, filthy, and disease-bearing feet. Suddenly the picture changed, and a good-looking woman carrying a fine healthy baby in her arms came into the room and thrust the unclean nipple into the baby's mouth. The audience, composed of mothers and children, groaned in indignation at the sight, and the lesson went home.

If such illustrations can be given effectively, think how many other subjects might be similarly exposed to educate the public. Pictures of disease states in animals and even humans might be unfolded by moving films and yet not offend a general audience. The better class of moving-picture shows frequently introduce scenes from disordered streets, unsanitary houses, rooms, clothing, alleys, etc., and thus the people are shown positive examples of what may be found if they will only look for it.

Tuberculosis, in its varying phases and the manner in which the disease is spread, and particularly the surroundings in which such invalids live, as well as hospitals and fresh-air methods that are commonly employed to restore health, can be shown on the same film. No one can estimate the actual value of such exhibits, but from what can be heard in comments of the members of an audience, the lesson is one that will not soon be forgotten.

The people want to *see* things, in order to be convinced, and their thirst after knowledge of things medical should be as telling as possible. Every traveling state exhibit should have a moving-picture outfit. If an inspector and photographer could precede an exhibit in a town later to be visited, and the actual conditions that exist at the time of inspection could be shown, it would stimulate local health bodies, civic organizations, and women's clubs to great activity.

This country is still far behind Germany in health regulations, as the latter can order and enforce health measures, but in our own states, slow methods of education, with insufficient funds and practically no police powers, are constant handicaps toward removing, regulating, or policing the conveyors of disease.

MISCELLANY

IN MEMORIAM

William Charles Eichler, M. D.

By the Park Region District and County Medical Society.

On Monday, March 11th, Dr. William Charles Eichler died at St. Luke's hospital, Fergus Falls, Minn., from pneumonia after an illness of one week. The remains were taken to his boyhood home at Ada, Minn., for interment.

It is with deep regret that Park Region Society records the death of Dr. William Charles Eichler, who, although he came among us only recently, by his rare personality and manly character, had already acquired a host of friends, not only among his professional associates, but among all those with whom he came in contact. Always cheerful and loyal, always faithful in the discharge of his duties, he was a credit to his profession and will be sadly missed by all who knew him.

Dr. Eichler was born at Ada, Minn., on April 1, 1885, and was thus 26 years, 11 months and 10 days old at the time of his death.

He was a graduate of Hamline University, Department of Medicine, class of '08, and was admitted to practice in June of the same year. He served as interne at the City and County Hospital, St. Paul, from October, 1908, until December, 1909, and then entered general practice at Underwood, N. D., where he remained one year. The following nine months he spent doing post-graduate work in Europe. On his return from Europe he located at Fergus Falls, Minn., where he engaged in general practice until the time of his death.

This coming summer he was to have been married to Miss Amy Anderson, of St. Paul.

BOOK NOTICES

International Clinics. By Henry W. Cattell, A. M., M. D. J. B. Lippincott Co., Philadelphia.

One of the noticeable things in the "International Clinics" is the very readable quality of all the articles. The general practitioner can assure himself of many profitable and interesting minutes perusing its pages.

The article by Dr. Edward Turton, on constipation, is very good, covering concisely this subject. Dr. Fenton B. Turck, in his treatment of the subject of diseases produced in the intestines by the bacillus coli communis, is very thorough.

That the position of the heart in the thorax is not fixed is not new to us, but Dr. Thomas E. Sattherthwaite presents many statistics on this subject and shows the degree of mobility that may be present in health as well as the pathological side of the question.

The conclusions that Dr. Julius Friedenwald and Dr. T. F. Leitz arrived at on intestinal antiseptics, that they "markedly interfere with gastric digestion," and should be used with great caution, is gratifying to those who have had little faith in such medication.

A Manual of the Practice of Medicine. By A. A. Stevens, A. M., M. D. W. B. Saunders Company, Philadelphia.

This pocket size work on the "Practice of Medicine" is so well known and has passed through so many editions that an extended description is unnecessary. The sections on dysentery, acute pancreatitis, worm infection, rheumatic fever, dengue, rheumatoid arthritis, purpuras, aphasia, myelitis, acute anterior poliomyelitis, and disseminated sclerosis have been wholly rewritten, and articles dealing with acute dilatation of the stomach, mucous colitis, sprue, suppurative cholangitis, beri-beri, Malta fever, sleeping sickness, plague, and pellagra have been added. The function of the book, however, is not thereby impaired, as it is still of such a size as to be very handy for quick reference.

Dorland's American Illustrated Medical Dictionary. Edited by W. A. Newman Dorland, M. D. W. B. Saunders Company, Philadelphia, 1911. Flexible Leather, $4.50 net; thumb-indexed, $5.00 net.

The wide popularity of the several previous editions of Dorland's Medical Dictionary, makes any extended notice of the new edition unnecessary. Though many new terms have been added, the book still retains a convenient size for ready reference, and the typography is quickly and easily read. This edition has been entirely reset and the following new features added: a guide to capitalization, a complete list of veterinary and dental terms, and a comprehensive dosage and therapeutic table extending over fifty pages. Medical biographies are also given, and the book contains the full name, nationality, specialty, and dates of birth and death of men whose names have been given to diseases, structures, procedures, etc., and also short biographic sketches of the "fathers" of medicine.

Hieronymus Fracastor's Syphilis from the Original Latin. A translation in prose of Fracastor's Immortal Poem. The Philmar Company, St. Louis, Mo.

Fracastor first wrote a prose treatise, De Contagionibus et Contagiosis Morbis, which he transposed to heroic verse and renamed it Syphilis, after the shepherd who tended the flocks of King Alcithous and who is represented as being the first attacked because he had been the first to profane the sacred altars of Sirius.

In defining its cause his poetic vision turns to magic, to the planets, to astrology, and to numerous divinities. As to its origin incontestable testimony proves that it is not of a strange or foreign birth and that it was not necessary to cross the ocean to arrive upon those shores; yet in the West, that land recently discovered beyond the Atlantic, he thinks this disease had existed for thousands of years. The cause of the disease, the period of incubation, nocturnal pains, and cutaneous manifestations are described with wonderful accuracy.

Against the scourge many vegetable decoctions of complex composition and marvelous powers are invoked. He also mentions the sublime virtues of mercury and describes several combinations with oils and resins for use as an inunction. With one of these mixtures the body is anointed daily for ten days, and free perspiration induced at the end of which time you will feel the ferments of the disease dissolve themselves in your mouth and you will see the virus evacuate itself at your feet in rivers of saliva.

A truce to the disgust which may be caused by this remedy is found in the assurance that the disease is more so.

Emphasis is laid on the importance of early treatment, which is referred to as surprising the disease at its inception. He finishes the poem with a glorious tribute to Guaiac, which he salutes as the pride of the New World.

His descriptive powers, touched with poetic fancy, show a vividness and accuracy which bespeak a familiarity and extensive acquaintance with the subject treated.

Hospital Management. A Handbook for Hospital Trustees, Superintendents, Training-School Principals, Physicians, etc. Edited by Charlotte A. Aikens. W. B. Saunders Company, Philadelphia.

This is a modern treatise upon the management, construction, and equipment of hospitals, written by twenty-one contributors and edited by Miss Charlotte A. Aikens. Miss Aikens' experience in hospital work and close touch with the status of modern hospitals and nursing, put her in a position to choose the best for her book, and the names of the contributors include some of the leading hospital superintendents and architects in the country.

The book covers the field very completely, from chapters on the building and equipment of a hospital down to the management of the hospital laundry. All departments of the hospital are discussed by recognized authorities, and the book will be found of value and interest to all who are engaged in such work.

A Pocket Medical Dictionary Giving the Pronunciation and Definition of the Principal Words Used in Medicine and the Collateral Sciences. By George M. Gould, A. M., M. D. Sixth edition, revised and enlarged, 34,000 words. P. Blakiston's Son & Co., Philadelphia.

This edition of Gould's standard and well known dictionary will be welcome to the many users of his earlier publications. Additions have been made to the number of words, and they now include the latest accessions to medical nomenclature. The book is pocket size, and is bound firmly in a flexible leather. To those who have used the earlier editions extended recommendation is superfluous.

Tuberculosis as a Disease of the Masses and How to Combat It. International Prize Essay. By S. Adolphus Phoff, M. D.

This essay is a valuable asset to the many contributions on this subject. This is an excellent contribution for our public and private libraries, a work which should be widely disseminated and read. It is short, concise, explicit, and couched in remarkably simple language.

The story of what tuberculosis is, how it may be controlled, what can be done to protect ourselves against it, the different forms, what heredity and predisposition are, what municipal authorities can do in their official capacity, what dairymen can do, important early signs and symptoms, what can be done in our public schools, can it be cured, modern methods of treatment and cure, what our public, state, and municipal sanatoria are,—all are told in such a simple and pleasing way that the story is fascinating and instructive. The whole subject is covered in thirty-four short, crisp, concise chapters. Different phases of the whole subject are ably illustrated by original drawings.

Progressive Medicine. A quarterly digest of advances, discoveries and improvements in the medical and surgical sciences. Edited by Hobart Amory Hare, M. D. Assisted by Leighton F. Applemant, M. D. Lea & Febiger, Philadelphia and New York.

Vol. 13, No. 2 (June 1, 1911), of this well-known digest contains articles on the following subjects: Hernia, by William B. Coley, M. D., Surgery of the Abdomen, Exclusive of Hernia, by Arpad G. Gerster, M. D., Gynecology, by John G. Clark, M. D., Diseases of the Blood, Diathetic and Metabolic Diseases, Diseases of the Thyroid Gland, Nutrition, and the Lymphatic System, by Alfred Stengel, M D., Ophthalmology by Edward Jackson, M. D.

As is true of the past numbers, this one is well edited and there has been a careful selection of important phases of medical progress. Gerster's article contains, among other things, a clear review of the subject of Roentgen rays in diagnosis of abdominal conditions. Some very interesting and valuable facts are brought out. Momburg's aortic tourniquet is fully described and its widespread adoption recommended. The subject of cancer receives an unusually full consideration and this is especially true as regards its heredity. The work of Reynolds and Lovett on certain forms of backache receives extended attention. The chapter on exophthalmic goitre has almost as much space allotted to it as the entire subject of ophthalmology.

The contents of Vol. 13, No. 3 (September 1, 1911), are as follows: Diseases of the Thorax and Its Viscera, Including the Heart, Lungs and Bloodvessels, by William Ewart, M. D., F. R. C. P., Dermatology and Syphilis, by William S. Gottheil, M. D., Obstetrics, by Edward P. Davis, M. D., Diseases of the Nervous System, by William G. Spiller, M. D.

In this number Ewart has contributed a full abstract of the discussion at the last annual meeting of the British Medical Association, on the factors that make for an efficient circulation and this includes an epitome of the latest teaching on some of the most advanced physiological questions. As is common in other publications of the present time, the article on syphilis gives extended consideration to arsenobenzol. Only a short space is given to the Wassermann reaction. The article on pregnancy by Davis includes 14 pages devoted to the subject of eclampsia. Spiller gives a decidedly brief summary of the recent progress in nervous and mental diseases.

The Health-Index of Children. By Ernest Bryant Hoag, M. D. Whitaker and Ray Wiggin Co., San Francisco.

The purpose of this little manual is to cover the subject of medical school-inspection in all its phases. It is brief, concise, and to the point, yet so plain and free from technical medical terms that almost any parent or teacher can easily understand the meaning the author intends to convey.

Part I covers "The Health-Index of the School Child," noting all the important physical defects usually found, with simple methods for detection of same.

Part II treats of "The Child and His Environment." Here are found some very practical suggestions concerning food, home sanitation, and the health of the teacher.

Part III has to do with "Health Organization in Schools," giving practical methods used in different places for carrying out comprehensive inspection plans.

The book should be read by every parent and school teacher.

One Hundred Surgical Problems. The Experiences of Daily Practice Dissected and Explained. By James G. Mumford, M. D. Boston, W. M. Leonard.

Dr. Mumford has collected one hundred surgical cases, each of which, he states, is either a problem or an illustration of important features in diagnosis and treatment. The author presents his histories in a vivid and highly entertaining fashion and with a good appreciation of the psychical characteristics of the patient. He discusses the symptoms and physical findings of each case and gives us frankly his clinical diagnosis. He follows this with a description of the operation and operative findings, and finally with the post-operative history of the case. In these post-operative histories he is most frank and gives us the benefit of his errors as well as his successes.

We can apply to this book the words which the author uses in another connection: "The method is luminous and the lessons are instantly comprehensible."

International Clinics. By Henry W. Cattell, A. M., M. D., and collaborators. Price $2.00. J. B. Lippincott Co., Philadelphia. Vol. III, Twenty-First Series.

This volume contains more than the usual number of valuable articles by leading English and American physicians on various phases of therapeutics, pediatrics, neurology, surgery, obstetrics, etc. Among the most interesting is one on "The Modern Treatment of Arteriosclerosis," and another on "The Relationship Between Gastric and Urinary Acidity."

Case-Histories in Medicine. By Richard C. Cabot, M. D. W. M. Leonard, publisher, Boston.

A unique and thoroughly sensible way of presenting, not only some of the more complicated questions of physical diagnosis, but also many of the more frequent problems that confront the general practitioner is found in this second edition of Dr. Cabot's valuable work. No one can read it without profiting by its clear presentation of the puzzling point in diagnosis, the reasoning for good conclusions, and best of all, for the patient, the effective treatment given in this list of one hundred selected cases.

Diseases of the Stomach. By C. D. Aaron, Sc. D., M. D., Professor of Gastro-Enterology and Adjunct Professor of Dietetics in the Detroit College of Medicine, etc. Lea & Febiger, Philadelphia, 1911.

The author says that he has "endeavored to cover the medical aspect of gastric disorders in such a manner as to answer the actual needs of the practitioner." The writer thinks that no one, reading this excellent work, will deny that he has largely accomplished the task that he had set for himself.

Dr. Aaron's book is in line with modern ideas, which is all that can be expected from any book that deals with such a vast amount of material, much of which is still in the transition stage.

Considerable attention is given to the views and methods of others eminent in gastrology, both in this country and in Europe, but we find no mention of Rudolf Schmidt's work regarding the significance of sarcinæ and lactic acid bacilli, in the feces, in stagnation, and carcinoma. Perhaps the author did not regard them as sufficiently well established to be worthy of space.

It would be of interest also to have the personal opinion of Dr. Aaron concerning the value and practicability of some of the methods that he describes, such as Einhorn's duodenal bucket, Solomon's test, etc.

Dr. Aaron's work is a valuable addition to the physician's library and in view of the fact that fifty per cent or more of so-called "stomach troubles" are really intestinal troubles, or, at least, complicated with the latter, the writer hopes that the time is not far distant when the author will furnish us with a work dealing with the very important, although often obscure and elusive, maladies of the lower digestive tract.

REPORTS OF SOCIETIES

MINNESOTA ACADEMY OF MEDICINE

The Academy met on Wednesday, March 6th, at the Town and Country Club.

Dr. Litzenberg reported the case of a child (born since the last meeting at which Dr. Chilton reported his case) with cystic hygroma of the neck.

He made the point that recent authorities consider the above term undesirable and prefer for those cases which are not bronchial the term *lymphangioma* or, better, *lymphangiectasis.*

Dr. Warren Dennis then read a paper entitled, "An Operation, Believed To Be New, for Strangulated Femoral Hernia." The subject was discussed by Drs. Moore, Benjamin, Little, Sweetser, and Abbott.

A. W. Dunning, M. D., Secretary.

BROWN-REDWOOD COUNTY SOCIETY

The Society met at New Ulm on March 8th. Papers were read as follows: "Anesthetics," by Dr. G. B. Weiser, New Ulm; "Conditions We Find in the Nose and Throat," by Dr. D. F. Wood, Minneapolis; "Nuggets," by Dr. O. C. Strickler, New Ulm; "Report of Four Cases," by Dr. W. A. Brand, Redwood Falls.

Officers were elected as follows: President, Dr. J. L. Schoch; secretary-treasurer, Dr. G. F. Reineke; delegate to state convention, Dr. O. C. Strickler; alternate, Dr. Schroeder.

G. F. Reineke, M. D., Secretary.

LYON-LINCOLN COUNTY SOCIETY

The annual meeting of the Society was held in February, and was given over to the presentation of clinical cases and the election of officers. The following officers were elected: President, Dr. Wm. Wakefield, Lake Benton; vice-president, Dr. W. Akester, Marshall; treasurer, Dr. C. E. Persons, Marshall; secretary, Dr. H. M. Workman, Tracy; delegate, Dr. W. H. Valentine, Tracy.

H. M. Workman, M. D., Secretary.

NEWS ITEMS

Dr. J. C. Ash, of Garden City, S. D., has moved to Fruita, Colo.

The South Dakota State Association will meet at Aberdeen on May 22-24.

Dr. P. E. Brandon has moved from Jackson, Minn., to Sioux Falls, S. D.

Dr. G. R. Fugeino has moved from Janesville, Minn., to Fountain City, Wis.

Dr. Egertson Sproule, a graduate of Toronto, has located in Dickinson, N. D.

Dr. E. H. Kelly, of Ironwood, Mich., died last month at the age of 72 years.

Dr. Hans Grivelli has moved from Hohenwald, Tenn., to New Germany, Minn.

Dr. Parker's Hospital at Warroad has opened, and two graduate nurses are in charge.

Dr. H. H. Hanson has located at Red Lake Falls. He formerly practiced in Sedan.

Dr. Theo. Satersmoen, a 1910 graduate of the State University, has located at Deer River.

Dr. D. O. Smith, who formerly practiced at Bismarck, N. D., has gone to the Canal Zone.

Dr. Franklin Raiter, a graduate of the Marquette College of Milwaukee, has located at Cloquet.

Dr. Carl M. Johnson, of Montevideo, has been appointed assistant surgeon of the C., M. & St. P. Ry. at that place.

Dr. G. D. Todd, of Medina, N. D., has sold his practice to Dr. Soper, who formerly practiced at Montpelier, N. D.

Dr. M. H. Marken, of Dawson, has purchased the practice of Dr. A. M. Aanes, of Boyd, and will move to Boyd at once.

The medical students of the State University elected Miss Hazel Bonness, a junior medic, a member of the All-University Students' Council.

Dr. John G. Cross, of Minneapolis, read a paper on "Anemia" before the Interurban Academy of Medicine of Duluth and Superior at its March meeting.

Dr. Edward R. Pritchard, secretary of the Chicago Board of Health, addressed the Minneapolis Civic and Commerce Association on "Civic Health and Sanitation," last month.

The date of the Minnesota State Medical Association has just been fixed, and it is August 14th and 15th, the House of Delegates meeting on the 13th. The place of meeting is Duluth.

Dr. Wm. C. Eichler, of Fergus Falls, died last month at the age of 26. We publish, in another column, a memorial notice of Dr. Eichler adopted by the Park Region Medical Society.

The degree recently conferred upon Dr. Wm. J. Mayo, of Rochester, by the University of Pennsylvania was the degree of LL. D., which is the highest conferred by American universities.

"Dr." John Till got a hung jury in the damage case brought against him in St. Paul last month. Smart lawyers and fool juries will protect almost any kind of swindling in this country.

About fifty rural schools in the south half of Morton County, N. D., are to have medical inspection. This work is done under a law passed by the N. D. legislature last winter. Medical inspection in rural schools has just begun.

Dr. George M. Coon, of St. Paul, died suddenly on March 20th. Dr. Coon was born at Faribault and was the son of a physician, Dr. H. L. Coon. He graduated at Rush in 1883, and his father graduated from the same school in 1855.

Dr. Charles Lyman Greene, of St. Paul, was one of the six American delegates appointed by the U. S. Secretary of State to attend the International Congress on Tuberculosis at Rome this month, but he will be unable to leave his work at the University.

Dr. Albert Plummer, of Rochester, died last month at the age of 72 years. Dr. Plummer was a surgeon in the Civil War, and formerly practiced in Hamilton and Racine, in this state. He was the father of Drs. H. S. and G. A. Plummer, both of Rochester.

Dr. W. J. Mayo read a paper last week before the Ramsey County Medical Society, the meeting being held at the rooms of the Commercial Club because of the large attendance of members and guests. Dr. Mayo's subject was "Surgery of the Spleen."

The capital stock of the Sioux Falls (S. D.) Hospital Association has been increased from $10,000 to $100,000. The name of the hospital has been changed to "The Sioux Falls Lutheran Hospital," and plans for the enlargement of the building will soon be made.

The Women's Auxiliary of the St. Louis County Medical Society is doing some active medical as well as social work. The Society will co-operate with the city's visiting nurse, and will add the friendly visits of the members to the professional visits of the nurse. Mrs. M. S. Hirschfield, chairman of the Duluth Auxiliary, visited the Minneapolis Auxiliary last month and made a report on what she saw of the work in Minneapolis.

The Woman's Auxiliary of the Hennepin County Medical Society held its annual meeting last month when the following officers were elected for the coming year: President, Mrs. C. A. Donaldson; first vice-president, Mrs. S. P. Rees; second vice-president, Mrs. C. H. Bradley; recording secretary, Mrs. W. D. Sheldon;

corresponding secretary, Mrs. J. C. Litzenberg; treasurer, Mrs. Don Fitzgerald; auditor, Mrs. F. F. Bissell.

The Hennepin County Medical Society has been engaged for several months in an effort to break up a gang of abortionists in Minneapolis. The legal committee of the Society has the work in charge, and its members are satisfied that several deaths have been caused by the four or five men in this gang. It is well-nigh impossible to get evidence against such men, but the committee will keep at the work until the end sought is an accomplished fact.

Dr. Robert R. Rome, of Minneapolis, died last month at the age of 48 years. Dr. Rome was born in Copenhagen, Denmark, and came to this country when at the age of three years. He took a literary course at the University of Chicago, then a course in theology, and preached for one year. He graduated from Rush in '92 and from the University of Minnesota, and did postgraduate work in Europe. He was a member of several medical societies.

The new St. Andrews Hospital in Minneapolis was dedicated last month. St. Andrews is a German Lutheran institution. The present hospital building is the Gillette residence remodeled, and at an early day the building will be enlarged or entirely rebuilt. The location is one of the most desirable in the city. The following physicians and surgeons constitute the staff: Dr. Wm. M. Chowning, surgery; Dr. James E. O'Donnell, assistant in surgery; Dr. W. D. Shelden, internal medicine; Dr. F. W. Schlutz, children's diseases; Dr. A. S. Gillette, orthopedics; Dr. F. L. Adair, obstetrics; Dr. C. N. Pratt, eye, ear, nose, and throat; Dr. A. A. Laurent, anesthetist.

The Ramsey County Society has issued an attractive program for its weekly meetings in April and May. These meetings are held on Wednesday at 1:30. Luncheon is served from 1:00 to 1:30, and the scientific work of the meeting begins and ends promptly. The Hennepin County Society holds similar midday meetings on each Tuesday, and a program of the April meetings is now out. Each of the societies brings men from outside to make addresses at these meetings. Dr. Emil Beck, of Chicago, will speak before the Hennepin County Society on the use of bismuth paste in chronic suppuration at its meeting, Tuesday, April 2d. Visitors are cordially welcome to all the meetings of either society.

PRACTICE FOR SALE

The practice of the late Doctor Robert Rome, 700 Donaldson Bldg., Minneapolis, is offered for sale, with or without furniture and equipment. Dr. Rome was in general practice in Minneapolis for 17 years and in surgery 4 years. For particulars, address J. M. R., 706 Donaldson Bldg., or telephone Harriet 52, Minneapolis.

ASSISTANT WANTED

A physican in general practice in a Minnesota village wants an assistant. A good opening for the right man. Address S. K., care of this office.

PHYSICIAN WANTED

A competent physician is wanted in a good South Dakota town. Rent of a modern office practically free. This is a good opportunity in a money-making field. Address S. A. B., care of this office.

PRACTICE FOR SALE

I will transfer my practice to the purchaser of my residence listed at less than cost. Location, good town 25 miles from Minneapolis. Catholic preferred. Address G. D., care of this office.

POSITION WANTED

A graduate of the University of Minnesota, '05, desires a position as assistant to a general practitioner or surgeon. Would consider locum tenens for not less than three months. Address B. B., care of this office.

DESK AND CASE-RECORD FOR SALE

For Sale, an American Case & Register Company desk, with case-record and book-keeping system combined. Desk 5 feet long and 42 inches high; oak finish. Address Dr. H. G. Norton, 920 Rice street, St. Paul.

BOOKS FOR SALE VERY CHEAP

1 set, 16 vol., cloth, "Works of Theodore Roosevelt"	$15.00
1 set, 12 vol., cloth, "John Fiske's Misc. Writings"	24.00
1 set, 12 vol., ½ Morocco, Grand Sicle Edition "Twentieth Century Cyclopedia and Dictionary"	19.50
Bryant's Operative Surgery, 2 vols., ½ Morocco	10.00
Peterson & Haines, "Legal Medicine and Toxicology," 2 vols., ½ Morocco	12.00
Burnett, Ingals & Newcombs, "Diseases of Ear, Nose and Throat," 1 vol. cloth	5.00
Tuttle's "Diseases of Anus, Rectum and Colon," 1 vol., ½ Morocco	6.50
Butler's "Diagnosis of Internal Medicine," 1 vol., ½ Morocco	6.50
Johnson's "Surgical Diagnosis," 3 vols., ½ Morocco	21.00
Ochsner's "Clinical Surgery," 1 vol., cloth	4.00
Vol. 1, 2, 3, Osler's "Modern Medicine"	21.00
Total	$144.50

All of these books are as good as new; some have not been opened. I offer the lot for $50. Address B. R., care of this office.

PUBLISHER'S DEPARTMENT

SANITATION IN THE HOME

Once more we are in the dawn of another disease-germ incubation-season. What the physician, as well as the general public, needs is to be reminded rather than to be educated, and the repeated actual experience of the outbreaks of contagious diseases, typhoid fever in particular, should bring about an awakening in us of the danger of the open-vault closet. This system of soil disposal has been, and is, condemned by every health board, local, state, and federal, as being the most fruitful source of the multiplication and spread of transmissible disease, directly, by the flies and other insects, and, indirectly, by soil and water pollution.

This condition, an abomination to every sense of decency, is not only too true in the smaller communities and towns, but at summer resorts, lake cottages, and in the outskirts of every large city, as well, with the needless sacrifice of hundreds upon hundreds of lives annually in the state of Minnesota alone, each and every one a result of the improper disposal of fecal matter.

In these columns, reference has heretofore been made to a sanitary, odorless, and portable toilet closet, put upon the market by the Rex Sanitary Closet Co., 511 Plymouth Avenue, Minneapolis. By the use of this closet the spread of contagious disease from this source is impossible, and if its use were universal, the dreaded typhoid fever would not exist. This system has the approval of all sanitarians, and those interested should write direct to the Company for full information, etc.

A HEALTHFUL AND DELICIOUS TONIC

The Gluek Brewing Co., of Minneapolis, desire to call the attention of our readers to their malt tonic which is brewed in a scrupulously clean plant and from the purest and highest-grade materials. Malt, in one form or another, is very extensively used by physicians, and the Gluek Co. believe no malt preparation can be made superior to their tonic.

ECHITONE

The manufacturers of Echitone, Messrs. Strong, Cobb & Company, of Cleveland, Ohio, claim for Echitone that it is a powerful alterative and antiseptic which gives the most gratifying results in psoriasis, chronic eczema, syphilitic ulcers and eruptions, furunculosis. The results have been so uniformly good in the hands of the profession that the Company feels sure that a trial of the remedy in even the most obstinate cases will convince the physician of its efficacy.

Samples, with formula and literature, will be sent to any physician upon request.

ABDOMINAL SUPPORT WITHOUT DISCOMFORT

To many a patient, particularly if nervous and irritable, an abdominal bandage or binder that provides adequate support is a source of extreme discomfort. This refers to the usual binder. But through the use of the Storm Supporter all this annoyance is avoided, since it is so accurately adapted to the anatomy and shape of the mid-region of the body, that maximum support is afforded with minimum pressure and constriction. Indeed the unique feature of the Storm Binder is the frequency with which squeamish and fretful patients refer to the comfort it affords them. "I would never know I was wearing a band, but for the relief I obtain," says one. "The Binder fits and feels so good, it seems like part of my wearing apparel," says another. The advantage of all this in caring for obstetric and post-operative cases must be apparent. It goes far to account moreover for the remarkable success the Storm Binder has won among surgeons and obstetricians all over the country.—American Medicine, February, 1912.

THE SNOOK-ROENTGEN X-RAY APPARATUS

It is a difficult matter for anyone but an expert to select an *x*-ray outfit, for there are not a few poor imitation outfits that closely resemble the best ones. The Snook-Roentgen apparatus is the original interruptless machine, and was designed by Mr. Snook, who still supervises its manufacture.

This machine was selected for the hospital of the University of Minnesota after a most careful examination of all the best machines on the market, and it is sold by Messrs. Noyes Bros. & Cutler with their guarantee of excellence, which every physician in the Northwest knows is absolutely reliable. The physician or hospital that buys this apparatus will never be disappointed in it.

A PLEASANT, EFFICIENT LAXATIVE

The desirable qualities of a first-class laxative are efficiency and freedom from unpleasant taste. The lack of either to just that extent disqualifies the product for use in the treatment of chronic constipation. That it is difficult to find a palatable and efficient laxative in the same medicament is a pretty generally accepted fact. It is possible to do so, however, and Cascara Evacuant may be cited as proof of that possibility. This preparation is pleasant in taste, and in doses of 15 to 30 minims in water it performs its duty quickly and well, without incidental nausea or distress. That is why children rarely object to taking it, and adults prefer it to other preparations.

The product is manufactured by Parke, Davis & Co. and is procurable from any well-stocked retail pharmacy. To avoid confusion with other so-called aromatic cascaras, however, it is well to specify "Cascara Evacuant, P. D. & Co."

THE SWEDISH M. & M. INSTITUTE

The above Institute for giving massage, Swedish movements, and the baths and electrical treatment that accompany them, is under the management, and has been for many years, of a man selected by some of the leading medical men of Minneapolis to do this work. He is not only thoroughly competent, but is thoroughly ethical, and he prefers patients sent him by physicians with instructions as to the kind of treatment they wish their patients to receive.

Such an institution deserves the heartiest support of the profession, for it is both ethical and honorable, and it produces results and never does the harm so common to like treatment in untrained hands.

The director is Mr. Th. I. Thomsen, and he will be glad to correspond with or receive a call from any physician.

The Institute is located at 409 Evanston Bldg., Minneapolis.

MEDICAL PRACTITIONERS' LEGAL DUTY

The Physicians' Defense Company, of Fort Wayne, Ind., has issued a brochure with the above title, and it should be read by every physician who is not thoroughly posted on the law's requirements of him in his dealing with patients. With such knowledge as this pamphlet furnishes much trouble and expense may be saved at times even though the physician, not certain of his ground, may take what seems to him the proper step which may be illegal. The brochure can be had free upon request.

POSTUM

The steady, increasing demand, among all classes of people, for Postum as an agreeable, hot table-beverage, clearly indicates the high estimation in which this wholesome "cereal" coffee is held. The more people come to realize that coffee and tea contain an alkaloid which, while useful in the hands of a physician, is harmful in a beverage—the greater will be the call for Postum. This article is made of clean, hard wheat (including the bran coat, with its heavy mineral content), and a small per cent of molasses. When made right—boiled till rich and dark, as per directions on package—Postum, with good cream, is really a pleasant, wholesome drink.

THE MINNEAPOLIS SANITARIUM

This institution is fully equipped for the care of noncontagious acute and chronic medical and surgical cases, and especially for the treatment of alcoholic and drug addictions. At the institution are all such accessories as baths, ozone cabinets, etc. Dr. R. M. Peters, the medical director, cordially invites physicians to inspect the sanitarium where any physician may take direct charge of his patients the same as in any ethical hospital, or the patients will be treated by the medical director if so desired.

This is the only institution in the Twin Cities devoted to the special treatment of alcoholic and drug addictions on purely ethical lines, therefore physicians may know that their patients sent here are in a safe institution.

Booklet, with full information, will be sent to any physician, and the method of treatment will be furnished any physician desiring it. Further information may be obtained by addressing the manager, J. J. Baker, 1500 Elliott Ave. So., Minneapolis.

SIX DAILY TRAINS

Twin Cities to Milwaukee and Chicago

	The Daylight Express	The Columbian	The Fast Mail	The Pioneer Limited	The Olympian	The Iowa Express
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Lv. St. Paul	8:30 a. m.	9:45 a. m.	7:20 p. m.	8:35 p. m.	11:30 p. m.	3:05 p. m.
Ar. Milwaukee	6:55 p. m.	7:55 p. m.	4:35 a. m.	6:40 a. m.	9:40 a. m.	Via Dubuque
Ar. Chicago	9:10 p. m.	10:15 p. m.	7:00 a. m.	9:05 a. m.	11:59 a. m.	7:40 a. m.

All equipment owned and operated by the railway company, giving service not obtainable elsewhere.

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"LONGER, HIGHER, WIDER" BERTHS

Double Track All the Way Unequaled Dining Car Service

Chicago, Milwaukee & St. Paul R'y.

This line has been selected as the official route from the northwest to the annual meeting of the American Medical Association, to be held at Atlantic City June 3-7, 1912. Details will be announced later by the committee.

MINNEAPOLIS
328 Nicollet Ave.

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THE
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SOME MALFORMATIONS OF THE FEMALE GENITALIA*

By Fred L. Adair, M. D.
Instructor in Gynecology and Obstetrics at the University of Minnesota
MINNEAPOLIS

The original plan was to give a description of the embryology of the female genitalia and the classification of the various anomalies of the vagina and uterus. It will be possible to give only a very brief sketch of some embryologic changes and then present the results of my study of these cases.

The work was all done in the Institute of Pathology of the University of Minnesota, and I wish to express my gratitude to Dean F. F. Wesbrook and Prof. H. E. Robertson for permission to study the autopsy specimens.

You doubtless recall that the cloaca forms in early fetal life a common opening for the urinary, genital, and gastro-intestinal systems of the embryo. The formation of the perineum separates the cloaca into the rectum with its anal opening and the urogenital canal. The blind or hymenal end of the Müllerian ducts pushes downward, forming the urogenital sinus into which the vagina and urethra open. This sinus becomes the vaginal vestibule of the developed female. Thus three distinct passages are formed. It is not difficult to understand how a vaginal anus could arise from faulty development of the perineum or altered relations of the intestine and lower portions of Müller's ducts.

In order to understand clearly how the duplication of the genital tract arises it is necessary to remember that two Müllerian ducts are found to the inner side of the Wolffian or mesonephric ducts. They approach and join one another between the middle and lower thirds. The union extends both upwards and downwards from this point. They become fused into one canal between the 8th and 12th week of fetal life. At a later period, between the 4th and 5th months of fetal life, the upper portions become converted into a single uterus and the lower parts into one vagina. The uppermost portions of these ducts form the Fallopian tubes.

This very brief outline brings us to a consideration of the individual cases which are of considerable interest.

The first case to be reported is one of vaginal anus in a child that died of bronchopneumonia when seventeen days old. There was no anal opening between the gluteal folds. The rectum had an opening in the posterior vaginal wall near the hymen. This orifice appeared to be lined with epithelium. The rectum did not seem to be dilated, nor were the walls hypertrophied. The urethral opening seemed to be normal. The bladder, uterus, tubes, and ovaries were normal. There were other anomalies present, and 45cm. from the ileocecal valve a Meckel's diverticulum communicated with the small intestine. Two accessory spleens were found lying near and directly below the apparently normal spleen.

The history states that meconium was passed during the first day after birth and after that daily as long as the child lived.

The gross specimen (Case 1), with the pictures and lantern slide (1101), will give a better idea of the conditions than any verbal description. A longitudinal section through the walls of the vaginal anus was made for microscopical study. The posterior vaginal wall shows a surface covered with squamous epithelium. The tissue lying between the vagina and the anus consists mostly of loose fibrous tissue with some scattered bundles of muscle fibres. There are many thin-walled blood-vessels of medium size in this intervening wall.

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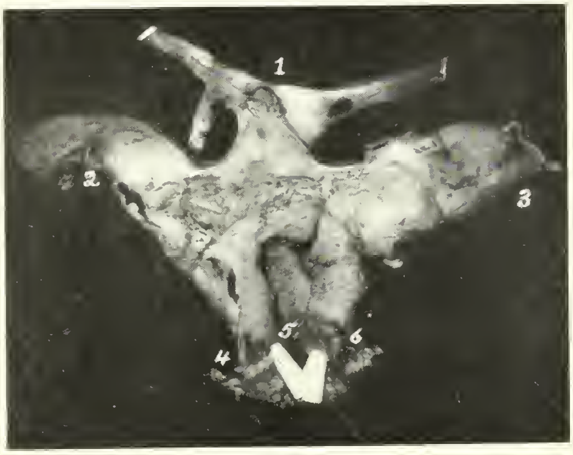
*Read at the 43d annual meeting of the Minnesota State Medical Association at St. Paul, Oct. 5 and 6, 1911.

The anterior wall of the anus is covered quite completely with squamous epithelium, which is invaginated to form quite deep crypts. Lying in this squamous epithelium are some gland-like structures lined with a single row of columnar epithelium, the cells of which have basal nuclei. The epithelium on the posterior is like that on the anterior wall. Near the external surface are a few sebaceous and sudoriparous glands. The posterior is of firmer structure than the anterior wall and contains a great deal more muscular tissue. The latter shows no tendency to form layers in the external portion, but near the upper portion there is a distinct longitudinal layer under the epithelium. The fibres of this layer become scattered lower down. Near the upper margin of the section there are some bundles grouped together, but they do not form a definite circular layer.



Case 1.—Vaginal anus. 1. Uterus and adnexa. 2. Rectum. 3. Bladder. 4. Anus. 5. Vagina. 6. Urethra.

Lying deeply in the tissue there is a nest of epithelial cells which looks like a transverse section of one of the crypts which open on the surface of the vaginal anus.

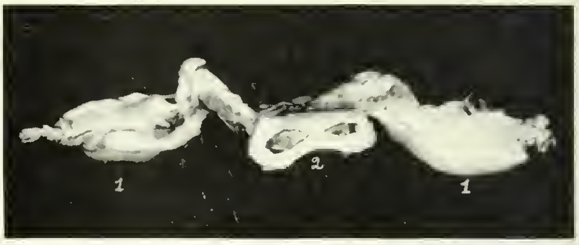
There are numerous blood-vessels and lymph-spaces in the posterior wall. Some of the vessels are large and have thick walls.

The muscle fibres in this section are all of the involuntary type.

The next specimen is from a child aged three and one-half years. She was admitted to the service of Dr. J. E. Moore at the University Hospital to have an operation for the cure of a vaginal anus. An artificial anus was successfully made, though the child died about one month later with symptoms of nephritis.

At autopsy the genitalia were found to be abnormal. The tubes and ovaries were normal except for some follicle cysts in the latter. The uterus presented two distinct bodies, each of which had its own cervix opening into an independent vaginal canal. The two vaginæ were entirely separate as far as the vulvar orifice. The vulva was not duplicated except for the appearance of three labia minora, one lying between the two vaginal orifices, the others being in the usual location. There was only one clitoris, which was located on the left side. The hymen could not be demonstrated. There was one urethral orifice.

The site of the vaginal anus was in the right vagina, though its location could not be accurately determined at the time of autopsy.



Case 2. Caudal view of infant uterus didelphys. 1. Fallopian tubes and ovaries. 2. Double vagina and two cervices.

The artificial anus had a fairly normal appearance. The rectum was greatly dilated. There was a Meckel's diverticulum about 2 cm. long with a thin mesentery located about 62 cm. from the ileocecal valve.

The pancreas had an unusual relation in that it formed a ring about 1 cm. wide, which surrounded the duodenum.

There was another anomaly consisting of the absence of the auricle and external meatus of the right ear.

It is impossible to demonstrate the gross specimen as it was utilized for microscopic study.

The first picture (Case 2) and lantern slide (1103) show a caudal view of the specimen. Both vaginæ can be plainly seen with the corresponding cervices lying within the canals.

The second picture (Case 2) shows an anterior view. The duplication of the genital tract can be seen quite plainly from this picture. Mesial sections were made in series of the lower portion of the vaginæ and external genitalia. It was hoped that some vestiges of the rectum or vaginal anus might be demonstrated. This attempt was not successful.

Cross-sections were made of both vaginæ at various levels. They are practically identical in form, size, shape, and structure. It is not necessary to describe the findings in detail as they do not differ essentially from the normal infantile vagina.

There is a musculofibrous tube surrounding both vaginæ, and within this each canal has its own sheath. There is not so much muscular tissue in the inter-vaginal septum as elsewhere, but even here each vaginal canal seems to have its own fibres. There is, however, some crossing and interlacing of the bundles.

Longitudinal sections through both cervices show them to be very much alike. They form two distinct canals though they are united mesially by firm musculofibrous structure. Each canal has an independent sheath of musculofibrous tissue. The epithelium and stroma appear quite like the normal for an infantile uterus.

Transverse sections through the upper cervical segment show two separate uterine cavities. They are united by a fairly distinct common muscular sheath, within which each canal has a more or less complete muscular tube surrounding it. The muscular septum separating the two cavities has about the same thickness as the sheath of one of the cavities. It is not possible to distinguish two distinct layers as the muscle-bundles cross freely. Cross-sections were made extending as high as the fundi and tubes. The uterine cavities remain distinct through their entire course. The cornua gradually become further separated, and their muscular sheaths become more distinct. The common sheath extends from one cornu to the other, making a bridge of tissue which extends to the fundus and tubes. The tubes present no great variations from the normal, and each one is joined to its respective cornu.

The Wolffian duct was found close to the periphery of the myometrium but only on one side. It seemed to enter the uterine wall in its middle third.

The endometrium and mucosa of the Fallopian tube present no especial variations from the normal.

The third case to be considered has already been reported by Dr. A. W. Abbott to the Minnesota Academy of Medicine. The following report was taken from remarks made by him at that time. The patient came under his observation October 10, 1910, and was at that time 16 years of age. She began to menstruate at the age of 15 years. The periods were regular with an interval of four weeks and lasted seven days. The color and quantity were normal, and there was hardly any pain. Immediately following the cessation of the flow she had considerable severe pain, which lasted from one to three days. In the interval she had no pain though there was always some soreness. In December, 1909, she first noticed a swelling in the left groin, which gradually enlarged. This mass was tender but not painful. There were no rectal or bladder symptoms except frequent micturition.

Physical examination showed the vulva to be normal. There was one vagina, and upon this a large fluctuating mass encroached. On account of this mass it was not possible to palpate the cervix. This tumor extended above the navel and filled out the left iliac fossa and pelvis. It also occupied a portion of the right pelvis.

The size of this tumor was not altered by emptying the bladder. The distortion of the bladder was so great that it was impossible to catheterize the ureters or segregate the urine.

The left kidney could not be felt, but the right one was easily palpable and semed to be enlarged.

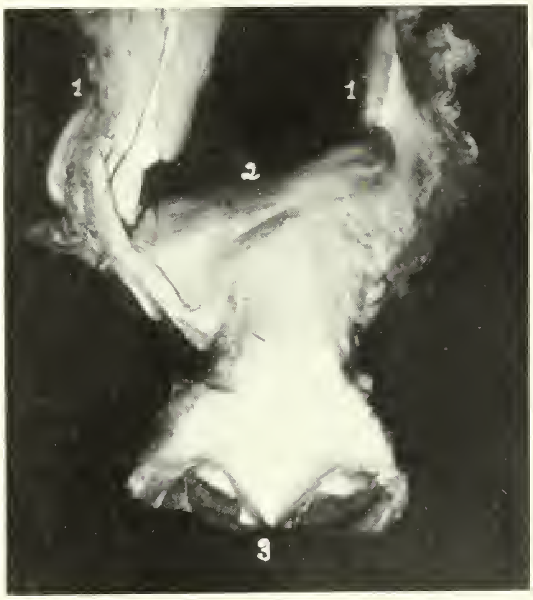
A laparotomy was performed on October 13, 1910. The left kidney could not be located: the right one was slightly enlarged.

In the left lumbar region there was a fluctuating mass about the size of an orange, covered by thickened peritoneum and adhesions. This consisted of the ovary and some peritoneum. The Fallopian tube, which was greatly distended, ran over the top of this mass into which the fimbriated end merged. Connected with this formation was a smaller mass which was the distended corpus uteri, which was about the size of an apple. This was located below and to the right of the first tumor. Below the uterus was the distended vagina, which contained about a pint of dark blood. There was about one quart of blood in all of these cavities. The left ovary, tube, corpus, and upper portion of the occluded vagina were removed leaving the other genital tract in an approximately normal position. The vaginal and uterine walls were about one-half inch in thickness. The lines of separation between the vagina and portio, the cervix and corpus, were not well defined.

The genital tract on the left side was complete except for the blind ending of the left vagina close to the vulva.

It is interesting to note the apparent absence of the left kidney as an associated anomaly.

The different relations may be seen in the picture of the gross specimen (Case 3). The microscopical findings will be considered in detail.

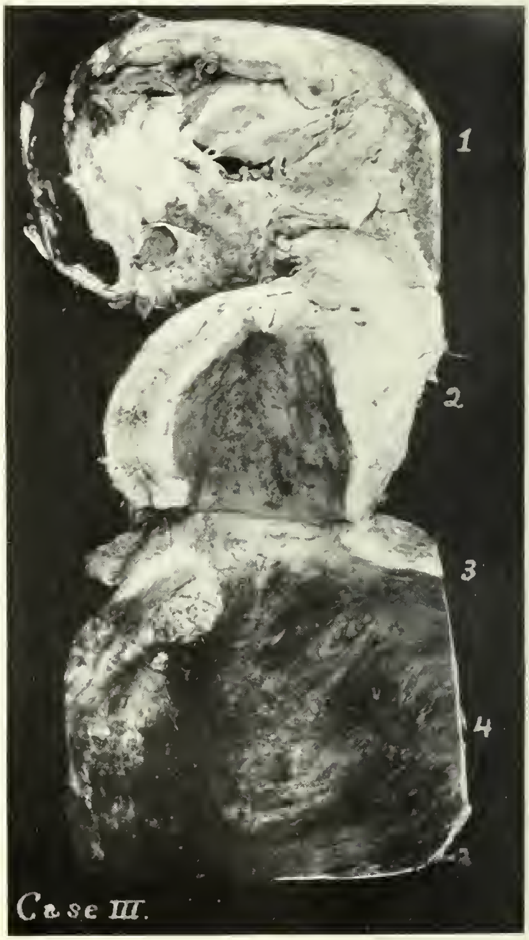


Case 2.—Anterior view of infant uterus didelphys. 1. Fallopian tubes and ovaries. 2. Double corpus uteri. 3. Double vagina and two cervices.

Cross-sections of the tube show a distention of the lumen nearer the fimbriated extremity. There is an accumulation of old blood and leucocytes. The epithelium on the surface is intact. The fimbriæ are matted together at the periphery of the lumen. There are hemorrhages and accumulations of leucocytes in the connective tissue of the fimbriæ. Nearer the corpus uteri the lumen is not greatly distended, nor are there hemorrhages into the tissue. The walls of the tube are thickened. There is an increase of both muscular and fibrous tissue; the latter shows some hyaline degeneration. In some of the lymph-spaces in the wall of the tube there are accumulations of old blood-pigment.

The endomentrium of the corpus uteri is atrophic. On the surface is seen an incomplete layer consisting of red-blood cells, lymphocytes, leucocytes, and fibrin. This shows in some areas the beginning of the formation of granulation-tissue. The superficial epithelium has been lost in many places. The cells resemble those usually found in the corpus, but their appearance and arrangement are much less regular than usual.

The glands, though similar to the normal type, are comparatively few in number and much less uniform in size, form, and course than normal. The lumina of many contain a hemorrhagic exudate. Their epithelial cells are fairly normal. The stroma makes a rather thin layer and consists of densely packed stroma cells. There is very little fibrosis here. The blood-vessels are quite numerous and distended.



Case 3.—Uterus didelphys with hematocolpos, hematometra, and hematosalpinx. 1. Fallopian tube and broad ligament. 2. Corpus uteri. 3. Cervix uteri. 4. Vagina.

The uterine wall is about two cm. thick; the tissue is mostly muscular and normal in appearance. The serous surface has its usual character.

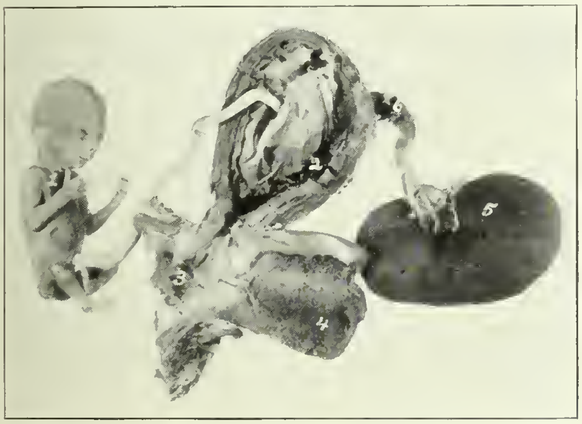
There are many accumulations of old blood-pigment in the vessels of the uterine wall.

The changes in the endometrium and wall of the cervical portion are practically the same as those already described for the corpus. The only essential difference is that the epithelium and glands conform to the usual type seen in the cervix uteri.

The epithelium of the vaginal part is of the stratified squamous type, though the superficial layers show little tendency to keratinization. There are a very few gland-like structures lined with cylindric epithelium, which communicate with the surface and lie under the superficial epithelium.

The other changes correspond very closely with those already described.

The last case in this series is that of a woman about 22 years old who committed suicide. Practically nothing is known regarding the history of this case, but the autopsy report is of considerable interest.



Case 4.—Uterus bicornis unicollis. Pregnancy in right cornu. Hydro-ureter. Hydronephrosis. 1. Fetus. 2. Right cornu. 3. Cervix uteri. 4. Left cornu. 5. Kidney. 6. Hydro-ureter.

The pelvis was occupied by the two fundi of a bicornate uterus. The right one was markedly enlarged, the fundus extending about 4 cm. above the brim of the pelvis. Its peritoneal surface was dark reddish-blue. The uterus, as described above, consisted of two separate fundi united near the internal ring in a common cervix. When incised the right corpus was found to contain a normal fetus and secundines. The fetus measured 19 cm. in total length corresponding to a gestation of about 18 weeks. The left corpus measured 12 cm. from fundus to external os. The cervical canal was about 5 cm. in length. It was about 4 cm. thick and 4 cm. wide. Its walls were thickened and the cavity was filled with a soft, grayish, mushy substance (decidua). The right corpus measured 10 cm. from the internal os to the fundus, and was 8 cm. wide and 5 cm. thick. The common cervical canal measured 3.5 cm. in length, but the cervical canal of each uterus was 5 cm. long.

The tubes and ovaries were normal. The right ovary contained a corpus luteum of pregnancy.

The left kidney was fairly normal. The right kidney resembled the left except for dilatation of its pelvis and calyces. The walls of the renal pelvis were very thin and contained clear urine.

The right ureter was dilated as far as the brim of the pelvis where the pregnant uterus pressed sharply against it. The walls of the dilated portion were thin. Below the pelvic brim the ureter was of normal calibre.

The points mentioned above may be seen in the picture of the gross specimen (Case 4).

Microscopic sections of the membrane lining the non-pregnant uterus show typical decidua compacta with its characteristic cells, blood-vessels, and sparsely scattered glands.

Sections through the wall of the non-pregnant uterus present typical changes of pregnancy. The decidual layers are present, the Opitz-Gebhard glands of pregnancy are plainly seen.

There is muscular hypertrophy of the uterine wall, and the muscle fibres themselves are much larger than in the normal non-pregnant uterus.

Excluding the portions of the wall of the pregnant uterus which are intimately associated with the fetal structure, the microscopic changes are practically identical with those in the non-pregnant uterus. The growth of the decidua is not so exuberant as in the non-pregnant uterus.

A piece of tissue was taken from the point where the two cornua are united. This is the thinnest part of the uterine wall and does not greatly exceed 0.5 cm. in thickness. The peritoneum extends into the depression between the two uterine bodies.

Microscopic examination shows the peritoneum, which has some cellular changes in a few areas greatly resembling decidua formation. Lying under the peritoneal surface there are some large blood-vessels and a small amount of adipose tissue. Fibrous tissue predominates over the muscular in this bridge which connects the two cervices. The bundles of muscle fibres are arranged irregularly. They are located mostly under the peritoneal surface. There is no great tendency for the bundles to decussate from one uterus to the other. Marked formation of decidua in the non-pregnant uterus is seen as low down as the internal os. The cervical epithelium and glands do not present any appearances not ordinarily seen in pregnancy.

This completes the presentation of specimens, and in conclusion a few remarks of a practical nature may be important.

REMARKS

Cases in which there is a complete aplasia of the anus with an abnormal opening into another lumen are uncommon. The rectum may communicate with the bladder, urethra or vagina. The rectovaginal opening occurs in about one-half of these cases. This condition is not inconsistent with normal physical development and good health. The vaginal opening must be large enough to permit of the free passage of feces, otherwise the lower portion of the large intestine may become dilated, as seen in the second case. The first case indicates, both from the history and finding of epithelium lining the recto-vaginal tract in so young an infant, that the communication existed before birth. There is no voluntary muscular sphincter, but an internal sphincteric action is often present. The obliquity of the passage through the posterior vaginal wall helps in producing a continence that may be quite efficient.

A condition of complete doubling of the genital tract is rare, and a vaginal anus opening into one side would constitute a very unusual combination.

A uterus didelphys with occlusion of one vagina constitutes an unusual condition and may lead to quite serious complications when the menstrual flow is established. An incomplete development of one side of the genital tract does not interfere with the occurrence of the physiological function of menstruation from both sides. The resulting condition may present great difficulty in making a differential diagnosis.

The other case showing a doubling of the upper portion of the genital tract illustrates the fact that pregnancy may occur in any of these cases showing more or less complete reduplication. It is possible for pregnancy to occur in both bodies. This may account for some of the cases of superfetation. There is doubtless a tendency to early miscarriage in these cases. Should the pregnancy go to term there is greater liability of the occurrence of rupture of the uterus.

The whole series illustrates the necessity of knowing the existence of these conditions and of making careful examinations. It is recorded that a dispute arose between two able men over a variation in their findings. A repeated and more careful examination demonstrated that they were both partly right. Each one had made an examination through a different vaginal canal.

IMPERFORATE ANUS*

By Arthur A. Law, M. D.
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MINNEAPOLIS

The rarity of this congenital malformation is well emphasized by a study of reports of its occurrence. Moreau, in a report to the Paris Academy of Medicine covering a practice of forty years in maternity hospitals, saw but four cases. Couty, of Havre, reports three cases in 3,500 confinements. Collins, in the Maternity Hospital of Dublin, saw but one case in 16,000 births. Zohie, of the Vienna Maternity Hospital, recorded but two instances in 50,000 infants. The records of the Paris Maternity Hospital show but five cases in 20,600 confinements, while in the Cochin Lying-in Hospital but one case occurred in 10,572 children, or approximately in all of the reports the percentage of occurrence was one in 10,000 confinements.

Operative relief of this condition is comparatively modern. The Greeks and Romans considered it beyond the reach of the surgical art. The first recorded operation was done in the seventh century by a French surgeon, Eginesta, who incised the perineal septum. His teachings were disregarded, and the trochar operation was done until, in 1787, an English surgeon, Sir Benjamin Bill, advocated perineal dissection. Shortly after this Dr. John Campbell, of Kentucky, did the first operation of this kind in America. In 1834 a Frenchman, Breschot, reported twelve successful cases from incision of the perineum. It was the lot of the French surgeon Amussat, in 1835, to write a splendid paper on this subject, which inaugurated the scientific and radical treatment of this condition.

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*Read at the 43d annual meeting of the Minnesota State Medical Association at St. Paul, Oct. 5 and 6, 1911.

Embryology gives us the clue which explains this infrequent deformity. The rectum and anus are developed from different embryonic layers, the rectum from the internal and the anus from the external layers. When the rectum is being formed from the hypoblast and mesoblast, there is an invagination of the epiblast to form the embryonic anus or proctodeum.

The outer and inner layers of the mesoblast are pressed together and become absorbed when the epiblast of the proctodeum approaches the hypoblast of the hindgut to unite the septum and absorb and form the rectum and the anus. Failure of absorption of one or the other of these layers is productive of deformity, which differs in degree, dependant upon whether it is a true case of imperforate anus or an anal opening at abnormal sites, e. g., the sacrum, loin, buttocks, vagina, bladder, urethra, or uterus. Frequently other deformities exist in the same child, as imperforate esophagus, branchial cleft, ear or mouth defects.

Bodenhamer's or Stieda's classifications of this deformity have been accepted for years, but for opportunity of study Tuttle's seems more practical and less elaborate. It is as follows:

MALFORMATIONS OF THE ANUS

(a) Entire absence of the anus.

(b) Abnormal narrowing of the anus.

(c) Partial occlusion of the anus.

(d) Absolute occlusion of the anus.

(e) Anal opening at some abnormal point in the perineal or sacral region.

MALFORMATIONS OF THE RECTUM

(a) Rectum entirely absent.

(b) Rectum arrested in its descent at a point more or less removed from the anus, the anus being normal.

(c) Rectum opening into some other viscus, with the anus present in its normal position or absent.

(d) Rectum and anus normal, except that the ureter, bladder, vagina, urethra, or uterus opens into it.

Elaborate studies of this condition have been made by Bodenhamer, who collected 465 cases; by Cripps, who collected 100 cases; and by Ashhurst, who collected 95 cases. Their mortality-tables are of less value than appear on the surface, for many of the cases were operated on at an early date, and include all methods of operative relief, both in infants and children, from perineal incision to inguinal colostomy. However, their mortality-statistics were 65 per cent for colostomy and 22 per cent for perineal proctoplasty.

Treatment.—Where there is a complete atresia, operative interference must, of course, be resorted to early, in an effort to save the child's life. Where there is some exit for meconium or feces, a less radical procedure may suffice, and a conservative course of dilatations be done until the child is older and stronger and better able to stand a radical operation. It is recognized that these malformed infants have less vitality and are greater operative risks than normal babies.

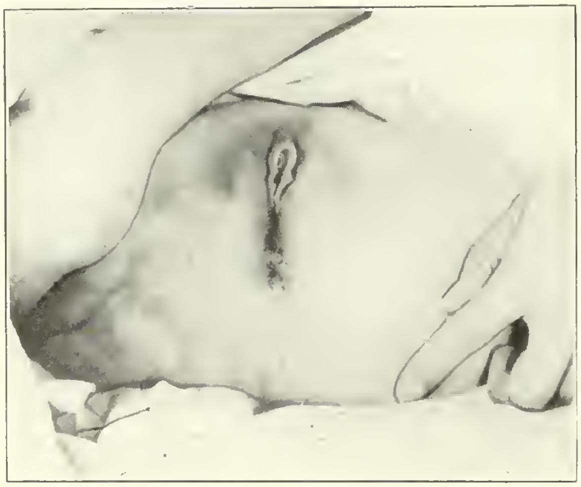
In cases of complete atresia, the lines of operative interference laid down by Amussat in 1835 have been little changed. The child is either not anesthetized at all or only partially, for the act of crying bulges the rectum, making it easier of recognition.

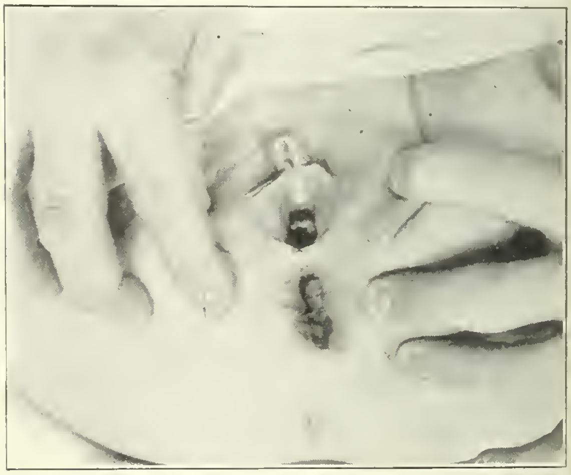
Incision should be made in the median line of the perineum, and should extend to the coccyx, if necessary. Careful dissection in the majority of cases reveals, just beneath the skin or within an inch and a half of it, the glistening distended pouch of the rectum, with a greenish tinge from contained meconium. When feasible the rectum should be drawn down into the incision and anchored to the skin before opening. Where this is impossible, opening of the rectum by trochar or small incision allows an escape of its contents, which are sterile, and collapse of the sac, rendering easier the task of bringing it down.

Amussat calls attention to the fact that severance of the sacral attachments of the rectum permits it the more readily to be brought to the skin.

When possible the rectum is sutured to the skin by chromic gut, which invades all coats of the bowel save the mucosa. This suture is preferably the interrupted or the Halstead variety. It should never be continuous unless broken at two points, for continuous suture about the bowel would conduce to stenosis. If it is impossible to bring the rectum to the skin, the gut is opened in the perineum, and a systematic course of dilatation resorted to to keep the fistulous tract open. Later development of the rectum, or scar-contraction drawing the artificial anus inward, has been productive of surprisingly good results, both as to control and to lack of stricture. Cripps reports astonishing success with it, and offers as the reason the fact that the muscles of the levator ani are almost always present, and those of the sphincter ani frequently.

In all cases where the rectum is not found close to the skin a more extended dissection is necessary, following up into the hollow of the sacrum as far as the promintory. Vincent has suggested splitting the coccyx and sacrum in the median line with scissors, as they are little more than cartilage at this age, and this gives a much greater opportunity of approach. Attention should be called, however, to the fact that great care should be exercised when the bowel is brought down that it is not incarcerated in this cartilaginous or bony cleft.


Case 1.—Before operation.


Case 1.—After operation.

Occasionally a sound in the bladder or vagina will aid in this perineal dissection and search for the rectum. At times a membranous band is found in the perineum, in which event it proves to be a certain guide to be followed to the rectal sac.

If the rectal pouch is not found, a secondary colostomy (after Littre's method) must of necessity be done as a last resort. It is the contention of modern writers that a primary colostomy should never be done until a thorough search of the perineum has been made. It is conceivable, however, that a child in extremis from distension and obstruction may be in no condition for a prolonged search through the perineum, and the quickest measure of relief, namely, colostomy, may be indicated, although the mortality-rate of this procedure is very much greater than the other.

When a perineal dissection fails to find the rectum and a colostomy is done, exploration, at a later period, through the distal end of the gut by probe, may reveal the blind end in the pelvis and facilitate finding the same by route of the perineum.

Maydl's method of closing the distal end of the bowel at the site of the colostomy, and the establishment of a permanent anus without further effort to re-establish one in the perineum, meets with little encouragement from the modern surgeons.

There seems to be little excuse for any surgeon to refuse the perineal route, as a study of statistics compiled from autopsy or operation reveals the fact that the rectum can be found in the pelvis in 90 per cent of the cases. Bodenhamer found it absent in but 41 cases out of 465. De Beule's observations on this condition are interesting, but would seem to need further confirmation before they are accepted.

He calls attention to the deformity of the pelvis as indicating the degree of the development of the rectum and affirms that in the new-born the distance from the coccyx to the pubes is normally 6 cm., and between the tuberosities of the ischia less than 5 cm. Reduction of these measurements, particularly between the tuberosities, ordinarily accompanies total absence of the rectum. If there is no reduction of the measurements it is fair to assume the rectum can be reached from below. Also absence of the coccyx and sacrum means that the rectum is not in the pelvis.

In those cases where the proctodeum is present, owing to the great difficulty of making an anastomosis between it and the gut, the procedure of dissecting out the mucous lining of the proctodeum, bringing down the gut and anchoring it to the skin, seems to be the logical one. Vincent suggests excising an ellipse of skin on either side of the new anus, giving a larger area of attachment for the rectum and lessening scar-contraction.

In the treatment of those cases of abnormal narrowing of the rectum, a judicious course of dilatation with bougie or finger is usually sufficient. Where there is a complete occlusion of the anus by a membrane, a simple crucial incision with subsequent dilatation will generally suffice.

In the cases where the rectum opens at some abnormal position on the skin, this opening is usually large enough to relieve the child's distress, and the radical procedure of transplanting the rectum to the normal anal site can be left to a later period in life.

If the rectum opens into the bladder it is a question of early operative interference, or death may be looked for from infection. The relief of this condition calls for early abdominal section. The location of the opening in the bladder will determine the operative procedure; if high up and accessible, separation of the rectum and bladder with closure of the openings in both, provided there is already an exit for feces, is done; if not, proctoplasty or colostomy must be done.

If the opening is near the base of the bladder, where it is impossible to reach it and apply sutures, a preliminary proctoplasty should be tried; if unavailing, a left inguinal colostomy should be done and the distal end of the bowel closed.

Where the rectum communicates with the urethra, fortunately the rectal pouch is generally low down and can be reached by the perineal incision, or it may be possible to transplant the opening in the urethra to the site of the normal anus, when the fistula in the urethra becomes a simple urinary fistula and will close itself.

As those cases where the rectum communicates with the uterus are so rare that an operative procedure has never been reported, each case will prove a law unto itself, and probably will be treated much as the cases which communicate with the bladder. In the only cases where the ureters were reported as emptying into the rectum the bladder was absent, so no operative procedure could be resorted to.

Where the rectum opens into the vagina,—and they constitute the larger proportion of all the cases,—the lines of operative procedure have been definitely laid down. Should there be imperforate hymen, it would, of course, be incised early. If the opening between the rectum and the vagina is not large enough this should be dilated, or, if necessary, incised. Usually all radical interference is to be delayed until the child has reached the age of four or five years.

Rizzoli has described the operation of election. It consists of splitting the perineum nearly to the coccyx, dissecting out the opening and the frequent sphincter about it in the vagina, liberating the rectal pouch, and transplanting the rectum into its proper place. After this the perineum is restored with catgut, silkworm gut, or silver wire, as the operator elects, and the mucous membrane of the vagina carefully sutured.

The two cases I have to report are cases of vaginal anus. They occurred in my service at the University Hospital.

Case 1.—March 12, 1910. K. C., a Pole, aged 13, referred by Dr. Sedgwick.

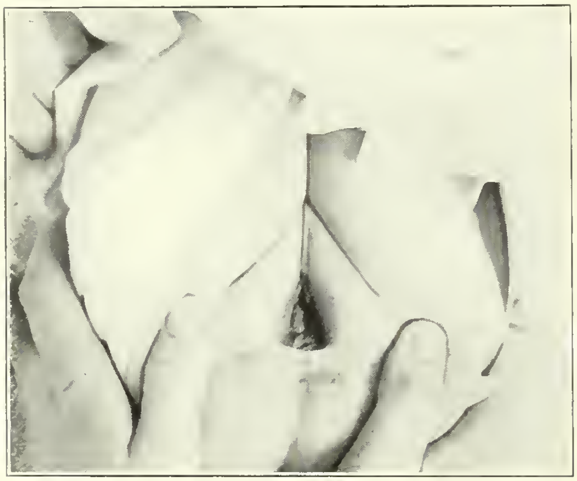
History.—Congenital imperforate anus; rectum opening into the vagina high up, just in front of the cervix; opening will take the tip of the forefinger. The child has absolute incontinence of feces and a chronic cystitis, with incontinence of urine. There is a dimple at the anal site, and rugæ of the skin which simulate the normal anus, but no opening is present.

Operation.—Under ether an incision was made through the skin down to the sphincter ani, which was present. This was dilated and a dissection made through the perineum until the rectal pouch was found. The rectal opening in the vagina was girdled and dissected free, along with the rectal pouch, for three inches. This dissection was tedious and difficult owing to the shortness of the rectum. The rectum, with its opening, was finally brought down to and through the sphincter ani and stitched to the skin with Pagenstacher mattress sutures through all coats but the mucous, while with chromic gut the anal margin was stitched with broken continuous sutures. The vaginal opening was closed with chromic gut. There was so much tension on the rectum, owing to its having been brought down so far, that the upper portion of the anal margin pulled out and a rectovaginal fistula occurred.

The new anus was dilated almost daily with finger or bougie, and the bowels kept fluid. Considerable cellulitis occurred in July, 1910, with a discharging sinus alongside the rectum. This was curetted and packed. It closed nicely.

March 18, 1911. Another operation was undertaken to close the rectovaginal fistula. The rectovaginal septum was divided up to the peritoneal reflection of the posterior cul-de-sac, and the rectum freed and brought down and anchored to the newly denuded anal orifice with two tiers of No. 2 twenty-day chromic gut. The perineal body was brought up over the rectum and closed together with vaginal mucous membrane.

The child was fed on albumin water and gruel, and the bowels were not permitted to move for eleven days. The result was perfect. Control of the bowels was acquired. There is a tendency to cicatricial contraction, which is successfully combated by use of a rectal bougie.


Case 2.—Before operation.

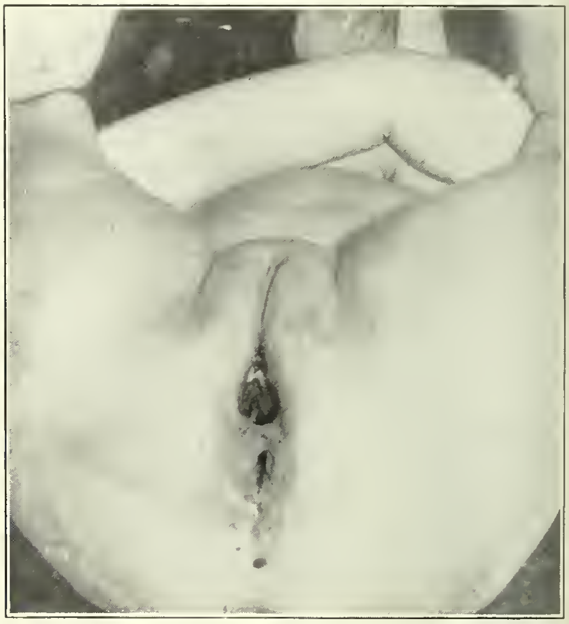
This case is unusual in that Rizzoli's procedure was not followed. Instead of splitting the sphincter and perineum they were both tunneled and the rectum brought down through the opening.

Case 2.—April 27, 1911. C. B., French, age three and one-half years, referred by Dr. Earl R. Hare.

History.—Congenital imperforate anus. Vaginal anus just within the fourchette. Incontinence of feces and chronic cystitis. This child has a complete absence of the right ear, including the external auditory canal, and a deformed auricle of the left ear. There is no evidence of the presence of the anus.

Operation.—After thoroughly cleaning out the bowels with castor oil, the child was put on albumin water and strained gruel for four days before operation. The operative field was prepared with 33 per cent iodine solution. Anesthesia was effected by ether.

Rizzoli's typical procedure here was resorted to. A median incision was made through the perineum, and the vaginal anus was girdled, dissected out, and, along with the rectum, transplanted to the lower angle of the wound after Vincent's ellipses had been cut away from the same. It was anchored with No. 2 twenty-day chromic gut, with two tiers of sutures as before. The perineum was repaired with chromic-gut and silkworm-gut sutures, and vaginal mucous membrane stitched. For a week the patient was fed on albumin water and strained gruels, and no bowel movement was permitted for that time. Primary union with control resulted. There was no tendency to stenosis. The child was up and about in two weeks.


Case 2.—After operation.

This child died thirty-five days later from acute septic nephritis, probably ascending. Her operative result was perfect. Necropsy revealed the cecum freely movable to the median line. The appendix was 7 cm. long and in the left iliac fossa there was a Meckel's diverticulum fifteen inches from the cecum, and vegetations were found on the heart-valves. The kidneys were swollen and congested. There was a complete double vagina and uterus, while a process of the pancreas surrounded the duodenum. There were two supernumerary spleens.

The conclusions forced upon us after a study of these cases and the scattered literature are, that, where there is an abnormal anus present, operative interference should be delayed until the child has reached a proper age, while immediate operation should be offered those infants where no anus is present, such operative relief being by the perineal route. Inguinal colostomy should be done only as a last resort.

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DISCUSSION

Dr. W. A. Dennis (St. Paul): Dr. Law has had an unusual experience in having had two of these cases come under his care. I have had little experience and can add but little to what has been said, but the absence of statistics on the subject is somewhat surprising, as most of the men I have talked with have seen one or two cases of this kind.

From what I have seen in the literature regarding this condition, it seems to run in localities. In some of the larger hospitals throughout the country cases are seen quite frequently, and in other localities there are no cases reported. I have seen only one case of this kind, and that was some twelve years ago and it was associated with other abnormal conditions. This was a girl who had commenced or attempted to menstruate a year or two without success, and she was brought to us with a tumor. This tumor was found imbedded in the pelvis and distended with fluid. The hymen was imperforate, and evidently there was stenosis in the neighborhood of the internal os. The rectum opened into the vagina about midway between the cervix and the vulva. A laparotomy was done. I do not know of any of the later details in the history of this girl, but she had no serious trouble, because I learned afterwards she had been married.

The matter of measurements which Dr. Law has mentioned it seems to me is one of extreme importance in determining the operative procedure to carry out in one of these cases. If we can know with certainty the measurements between the tuberosity of the ischium we can know whether the rectum is too high to be reached from below, and we can save the child a great deal of mutilation and shock by making the operation of necessity a colostomy.

I was surprised in looking up the literature to find the almost inconceivable conditions that exist. One case was reported in which there was imperforate anus where the man had reached the age of forty years and was in excellent health, but had no means of evacuating the fecal content of the bowels except through the mouth. One of these men had learned that he could insert a horn-shaped tube in the mouth and at intervals could evacuate the fecal matter in that manner. It would be difficult to understand the anatomy in cases of this kind, and it would perhaps have remained unexplained except for the fact that some one ran across a fetus that died soon after birth and found that the bowel circled upon itself and opened up in the pharynx. This evidently was also the situation of the man who had reached the age of forty years in this condition. Another case is recorded in which the evacuation of the fecal matter was accompanied by vomiting, while the urine was discharged from the navel. If these were not cases of absolute certainty they would be difficult to believe.

I think Dr. Law is to be congratulated upon the excellent results he has attained in these two cases, and I think I should hardly expect to have two such good results if I had had two cases in my own practice.

Dr. E. R. Hare (Minneapolis): In continuing the discussion on this very interesting subject, I want to speak of two or three general factors which have a bearing directly on the subject, and the first one of which is in relation to the embryological condition. We find in the very early days of the fetus a communication between all three of the cavities in the lower portion of the body, namely, the neurenteric, the gut, and the genito-urinary.

At a later period the neurenteric canal is separated from the other two, which now open into a common cavity, the cloaca. At a still later period, these structures are separated and we now have the hind-gut, and the genito-urinary tract, each with its own opening on the surface.

It is the failure in the development of these special parts of the child that causes the various conditions that we find. Evidences of the failure of the development of the lower portion of the hind-gut gives the beginning of the condition which the essayist encountered in these cases and which he has described to us today. These cases are of special interest to me because I had opportunity to watch them from time to time during convalescence after operative treatment.

In the second place, I would like to speak of the anatomy involved, especially in relation to the result to be obtained by the operation. We know we have an important factor in the levator ani muscles which assist the sphincter muscle. We may have portions of the external and the internal sphincter present, but we have always a levator ani muscle, and when we come to study this muscle, which is of very marked importance, we find it divided into two or more portions, and one portion goes back and across to the central portion of the perineum. Then it goes backward and forms a figure-eight, in which we find the anus enclosed. A young woman of possibly twenty-five years of age, with the anal opening inside the fourchette, presented herself to me for treatment. The anal orifice would admit two fingers. This woman was seven months pregnant; and seven years ago she was delivered by the use of instruments without rupture of the perineum and without injury to the rectum, which lay in the posterior vaginal wall. Her convalescence was normal, and two months later operative work was performed and the perineum was split back to the tip of the coccyx and the rectum transplanted into its normal position and her convalescence was uneventful. The result in this case was perfect. Within a period of two months this woman, under normal conditions, had control of her sphincter, so that she was able to live comfortably without the continual discharge from the rectum which she had experienced all her life.

Dr. F. A. Dunsmoor (Minneapolis): I am able to report three cases. In the year 1875 I attended a Mrs. Dobson in her third or fourth confinement at Lake Minnetonka. The case made a very deep impression on me at that time. As the external parts appeared perfectly normal, except that there was no opening to connect with the rectum, I thought that this was an easy case and that I could cure this condition by a simple incision. I immediately made a perforation through the nipple, which indicated the anus, and then I found I had a deep dissection to make before reaching the termination of the rectum. I am sorry to say I lost the case, and I am not sure whether it was the result of a hemorrhage or of infection.

The next was a case in 1880 occurring in the family of a Frenchman by the name of Charbaneau. This child did well, making a perfect recovery without any trouble whatever.

The third case I saw last year. It was one where there was a communication with the urethra, and the meconium was escaping through the penis. This little fellow was doing well the last I heard, but I have no means of knowing now whether the fistula through the urethra was cured or not.

Dr. A. A. Law (Essayist): There are one or two factors that enter into consideration of the operative work. In new-born infants who are subject to congenital malformation the operative field is relatively clean. We can approach the peritoneal cavity with impunity. This girl of thirteen years had had the condition so long that she was absolutely filthy. This condition added to the difficulty of the operation; in fact, we did not care to invade the peritoneal cavity, as she had incontinence of urine, and her urine was dirty.

A VISIT TO THE CHICAGO EYE, EAR, NOSE, AND THROAT CLINICS*

By Joseph D. Lewis, M. D.

MINNEAPOLIS

My object in presenting the following notes, made during a recent visit to several eye, ear, nose, and throat clinics of Chicago, is briefly to report those observations which I trust may prove of moderate interest, and to direct, in a measure, those who may, in the future, visit Chicago on a similar mission.

With the exception of the Indian operation for cataract, "the newer operations for glaucoma," and the associated diseases of the eye and nasal accessory sinuses, the ophthalmological field is quite inactive, i.e., as compared to the otolaryngological branches. In other words, ophthalmology is nearing a scientific position, while the otolaryngological field is being vigorously developed and rapidly advanced, with interest and activity everywhere apparent.

As all ophthalmic surgeons now fully appreciate the influences exerted by many nasal conditions upon ocular disturbances, new interest has been stimulated by this knowledge. Believing therefore that the otolaryngological branches are at present naturally claiming our greatest interest, most of the limited time allotted to the reading of papers by this Academy will be devoted to these subjects.

Chicago is frequently referred to as the coming medical center of America. This is true at present as regards the number of medical students. The hospitals and charitable medical institutions of a few large eastern cities are better organized, due in great measure to their rich endowment, which makes for efficiency, betterment of medical education, and opportunities for investigation and research work. Chicago will, undoubtedly, enjoy these advantages in the future. Even now, the ear, nose, and throat clinics of Chicago are probably unequaled in America.

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*Read before the Minnesota Academy of Ophthalmology and Otolaryngology, Feb. 9, 1912.

The Chicago Eye, Ear, Nose, and Throat Hospital is especially attractive to those who are seeking theoretical instruction, as here a didactic course is provided. The clinics begin at 9 A. M. and continue through the afternoon, and when not receiving clinical instruction, lectures are given to members of the class. Visiting surgeons will find it convenient to spend their mornings here, which leaves their afternoons free to attend the several other surgical clinics.

The special clinic at St. Luke's Hospital is held every Thursday afternoon and is in charge of such well-known men as Drs. Wood, Allport, Brawley, Guilford, and Woodruff. I regret that I was unable to avail myself of the pleasure of a visit to this clinic during my sojourn; but I was kindly accorded the privilege of seeing a number of their interesting private cases. Dr. Wood, after showing the results of the Indian operation for cataract, said that he had so far done fifteen extractions by this method with loss of vitreous in two cases.

In discussing this operation with several surgeons whose views, in the light of experience, lend importance to their expressions, the consensus of opinion was that the greatest advantages of extraction in capsule were to be found in individuals under fifty years of age (exclusive of juvenile cataract) and in those cases where the nucleus is hard with the attending *bête noir,* cortical matter and tough capsule. It would be interesting and valuable to know just what place the Indian operation will occupy in the future, after the "acid test" has been applied.

The Illinois Charitable Eye and Ear Infirmary is one of the largest ophthalmic and aural institutes in America, admitting more than 10,000 new patients annually. The attending surgeons, several of whom have achieved international prominence, are for the most part all well known and of recognized ability.

It would indeed be unusual to spend an afternoon at these clinics and not be rewarded by witnessing several capital operations upon the eye and ear. In addition to this, post-operative cases and dressing, and scores of patients who are receiving local, general, or combined medicinal treatments for diseases of the eye and ear are exhibited by the different members of the staff.

Dr. Ballenger's ear, nose, and throat clinic is held every Friday morning at the Physicians' and Surgeons' Hospital where visitors interested in these specialties are naturally attracted by his skill, popularity as author, and large clinical material. As many as fifteen tonsilladenectomies (if I may use the term) are performed at this clinic during his hours. His technic is as follows: The patient is placed in a dorsal-recumbent position, the Whitehead gag is used in all cases, and the source of light is reflected from a stereopticon lamp or from a cluster of lights above. In about seventy-five per cent of the cases, tonsillectomy is accomplished by Dr. Ballenger's modification of the Sluder guillotine, in the remaining twenty-five per cent, not amenable to this method, enucleation is accomplished by sharp dissection alone or combined with the snare or guillotine. The detailed steps of the Sluder method begin by placing the extremity of the fenestrum against the inferior and posterior portion of the tonsil, the shaft of the instrument crossing to the opposite angle of the mouth. As firm lateral pressure is exerted a portion of the tonsil enters the ring, the blade is partially closed to pinch the engaged mass, which is forcibly dragged forward to the eminentia alveolaris. The index finger is now placed behind the pillars and tonsil, and as strong pressure is exerted the instrument is tilted toward the median line, the knife is allowed to move backward, and the remaining portion of the tonsil is crowded through the fenestrum until evulsion is complete. The blade is then forced home, severing the tonsil *in toto* with capsule intact. The hemorrhage following this method is sharp and must be controlled by pressure. Dr. Ballenger regards primary hemorrhage of trifling importance. The technic of the guillotine operation is difficult to acquire, and many experienced laryngologists have failed to master it. The adenoid mass is partially removed by using the LaForce adenatome and completed with the ordinary curette, which engages the remaining small portion in the anterior epipharynx, which usually escapes the blade of the adenatome. With the finger the contents of Rosenmüller's fossa is swept away. For the performance of tonsillectomy under local anesthesia, about thirty drops (for each tonsil) of a one-half of one per cent solution of cocaine to an ounce, of which ten drops of adrenalin is added, is injected through a straight needle one inch beneath the tonsil. The needle is entered twice beneath the anterior pillar, once beneath the posterior pillar, and once about one-fourth inch above the plica, which induces almost immediate anesthesia.

In freeing the tonsil by sharp dissection none of the innumerable varieties of hooks, blunt dissectors, knives, etc., was employed by any of the operators whose clinics I visited. A very sharp scalpel is used, which is entered for nearly an inch between the anterior pillar and the tonsil as low as possible and directed upward over the margosupratonsillar space to free the velar lobe and downward to the posterior pillar which is shaved from its attachment to the tonsil. The importance of holding the knife at an angle, thereby cutting away from the center of the tonsil and avoiding the larger blood-vessels, is taught with emphasis.

Dr. Joseph C. Beck's large ear, nose, and throat clinic at the Cook County Hospital* is held every Tuesday, Thursday, and Saturday afternoon. In addition to the almost unlimited clinical material, one finds in Dr. Beck's skill and enthusiastic teaching ability, attractions appreciated by all who are interested in advanced work.

In elevating the mucoperichondrium and periosteum prior to submucous resection of the septum, a small strip of ("pin-wheel") gauze is forced backward in advance of the elevator. The claim for this original idea is that it lessens the danger of tearing the flaps. The dressing consists of several gauze wicks over which are spirally wound strips of very thin oiled silk.

Here one sees the Beck tonsillectome in use. This device is a component of the best practical features of several other instruments. The technic of this operation differs but little from that of Sluder's guillotine method except that severing of the tonsil is accomplished by the snare concealed within the fenestrum, which minimizes the hemorrhage by crushing the vessel walls.

It is important to know that the fenestral opening is no larger than a No. 1 Vedder loop.

Adenoids are removed by three zig-zag strokes of a small curette. First the middle portion is cut away, followed by the removal of the remaining lateral masses.

In one case where the lymphoid tissue extended forward and downward on the lateral pharyngeal walls, it was excised with forceps and scissors. Primary hemorrhage is promptly controlled with Beck's tonsil-clamp, forceps, or by sponge compression.

It was my good fortune to be present at Dr. Beck's Cook County Hospital clinic one afternoon when he performed two operations for infectious labyrinthitis of middle-ear origin. Preliminary mastoidectomy had been done in each case to effect drainage while the lowered vitality of these patients was being improved.

The first case, a woman aged 33, was characterized by accumulations of cholesteatomatous particles.

The second patient operated on was an emaciated man, aged 57. When admitted to the hospital some days previously he had manifested the cardinal symptoms of infectious labyrinthitis accompanied by complete facial paralysis. Owing to bronchial irritation, chloroform was, of necessity, the chosen anesthetic, and it was administered by the senior interne with experienced skill.

In both cases the motor-driven burr was frequently used, a procedure requiring caution and practice. Briefly reported, the ampullæ of the superior and horizontal semicircular canals were entered by removing a sufficient portion of the roof of the vestibule to permit the introduction of a fine flexible probe. The bone between the oval and round windows which opens the lowest whorl of the cochlea was broken down by a few light taps upon a small chisel. The bony bridge (Fallopian canal) between the external semicircular canal and the oval window was kept under constant observation and carefully and successfully avoided in the first case, a precaution not required in the second, as necrosis had destroyed a portion of the aqueductus Fallopii and affected the petrous bone to such an extent that it was necessary to expose the internal auditory meatus in seeking sound bone. Stitching of the Jansen meatal flaps into position completed the operation.

The North Chicago Hospital, where Dr. Beck does his private work Monday, Wednesday, and Friday afternoons, offers unsurpassed opportunities to the interested visitor. The laboratory is splendidly appointed and is in charge of an expert. Here one may examine hundreds of rare slides and histopathologic specimens, and see the original work being carried out in this interesting department. In addition to a variety of nose and throat operations, three cases in which the bronchoscope was used, were shown during one afternoon. Bruening's instrument was skillfully used in these demonstrations. Two of the cases were luetic, and the third was suffering from polyps located below the cords. In one of the luetic cases the epiglottis had been removed for excessive edema, and at another time tracheotomy had been performed when dyspnea became urgent. These infraglottic lesions were patiently shown, and the interesting features and histories discussed.

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*Before patients are admitted to this great institution they are obliged to sign an agreement which binds them to remain until dismissed by the attending surgeon. The wisdom of this requirement is obvious to all who have had to do with large charitable medical institutions.

The same day three cases of otosclerosis were exhibited. These patients were sisters between the ages of 12 and 21 with the characteristic otosclerotic family history. They are being closely observed as they received the following treatment (original with Dr. Beck): the blood-pressure is recorded, and one drop of adrenalin is subcutaneously injected and the pressure again noted at intervals of five and ten minutes. The amount of adrenalin is increased daily, but never beyond a point where the blood-pressure registers above 160. The originator will announce his results later.

Pfannenstiel's method, originally used in the treatment of intranasal lupus, is being used by Dr. Beck in non-tuberculous empyema of the nasal accessory sinuses and purulent otitis media. He reports encouraging results.

Pfannenstiel's theory is, that the iodides are decomposed in the presence of ozone, and nascent iodine is liberated. This is accomplished by administering 45 grs. of sodium iodide daily and applying to the affected area a cotton tampon which is kept saturated with a 2 per cent solution of hydrogen peroxide. Ulcerations will frequently heal in from two to three weeks.

With reference to the current acceptance at the Chicago clinics of the local and general therapy of several common diseases of the organs which are the subject of this article, the following is a summary: The importance of combating intestinal sepsis, prior and subsequent to surgical procedures, is now fully appreciated; old faithful nitrate of silver has not surrendered first place in the treatment of trachoma; tuberculin has proven a disappointment in its effect upon tuberculous lesions of the eye; salvarsan is increasing its popularity in luetic affections; bismuth paste has failed as a cure for empyema of the nasal accessory sinuses and is now practically abandoned.

Dressings following intranasal operations have, with few exceptions, been discarded.

In concluding these fragmentary and disconnected notes, it is not intended that their purport shall be accepted as a criterion of the best present practice or serve as a future guide; they are submitted merely for purposes of comparison.

THE NEW PUBLIC HEALTH—FOURTH PAPER

THE NEW PROGRAM AND THE NEW PRACTICE—FIRST PART

By H. W. Hill, M. D., D. P. H.

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MINNEAPOLIS

EMERGENCY EPIDEMIOLOGY

The previous articles in this series were designed to clear the way for the constructive program which the following articles will seek to set forth.

The conclusion so far reached is, that the chief immediate duty of official public health is the abolition of all the infectious diseases. For this great enterprise, both scientific principles and scientific practice are essential. The new public health principles have been outlined; the new public health practice remains to be explained.

Public health practice in handling infectious diseases may be traced through three distinct eras: past, present, and future.

Past, or era of "general sanitation."—The practice consisted in a strenuous campaign of "general cleaning up"; an orgy of sweeping, burning, scrubbing; an ecstacy of dirt-destruction, individual, household, municipal.[*]

This "general sanitation" was a true old-style, shot-gun prescription used indiscriminately, for any outbreak of any disease. No distinction of *sources* from *routes* of infection was made; indeed, that a distinction existed was hardly recognized, and, looking back, it sometimes seems that even the ordinary relations of cause and effect often were ignored.

Present, or era of "specific sanitation."—The practice is deliberately to analyze the particular outbreak of the particular disease concerned;

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[*] The reader is begged, pleaded with, besought, not to repeat at this point the wearisome old gibe, Then you want us to live like pigs? If not, why do you condemn "general sanitation?" We do not condemn "general sanitation," or cleanliness, or order, or decency. We simply present the scientific fact that these things do not greatly prevent, nor does their absence produce, infectious diseases. They have a thousand advantages, but not this one. Honesty does not protect against lightning; yet this fact can not affect a single honest man, nor does its statement detract from honesty in the least. And so with "general sanitation." It is **specific**, not "general," cleanliness that prevents infection.

speedily to determine thus the exact *route* of infection actually responsible; and promptly to abolish or block that route.

Future, or era of "supervision of sources."— The practice, so far as it is possible to forecast it, will be the location and supervision of the *sources* of infection (infected persons) before, not after, they gain access to *routes*, so in time eliminating infectious diseases entirely.

Thus it is seen that public health practices, past, present, and future, form a series, descending from the general to the particular, from the surroundings to the individual, from (a) the random application of blanket measures, through (b) a specific detection and a specific correction of a specific bad condition, to (c) the actual forestalling of the development of such conditions at all.

To make clear this most important matter of public health practice, illustrations are offered, exhibiting the public health practices of the different eras in action in the face of a typhoid fever epidemic, typhoid being selected because abolishing this one disease alone involves every modern public health principle, and, in some form, every modern public health practice.

The end sought was, is, and always will be, the same,—to stop the spread of the disease.

But the methods of the different eras contrast widely.

In the past era of "general sanitation," a typhoid epidemic was met by a vigorous attack on dirt, damp cellars, dust, disorder; on garbage, manure, dead animals, weeds, defective plumbing, and stagnant pools; cobwebs were cleared away; windows were opened to "let in the blessed sunshine"; preachers preached cleanliness; teachers taught bathing; health officers limed back alleys and whitewashed outhouses. Human nature demanded "action," and "action," of a kind, was supplied.

We know now, what they did not know then, that typhoid infection is carried by water, food, flies, milk, and contact, and that "general cleaning up" could not remove infection from polluted water-mains, or purify a contaminated milk supply; could not stop the eating of infected food or eliminate much contact infection.* The only form of typhoid which "general sanitation" could greatly affect was that due to flies.* But of course the fly was not then known as a route of infection in typhoid, so that even the results that "general sanitation" secured were secured largely by accident, i. e., by the unforeseen conjunction of an unrecognized cause with an unpremeditated cure.

The present era of "specific sanitation" began a decade or so ago. Water, food, flies, and milk have been fully recognized as the main public routes of typhoid infection; contact, especially of late, as the great private route. Outbreaks have been met by finding the particular route involved, and by abolishing or blocking that route. But even in this era, the earlier practice for the attainment of this end differed fundamentally from that of today.

The earlier epidemiologists† of this era argued thus: "Water, food, flies, and milk are the known public routes; usually some one of these routes is responsible in each outbreak. Therefore, to find the responsible route in any given instance, flood the stricken community with trained inspectors; analyze the water supplies; investigate the milk supplies; go through the markets; delve into the provision stores; estimate the number of flies, and locate their breeding-places; survey the back alleys and out-door toilets; plat all results on maps; interview the city engineer, the fire marshal, the meat and milk inspectors, and examine their official records; secure the morbidity and mortality records of the board of health; study all available meteorological, topographical, geological, and other data; in brief, probe, dissect, tabulate, collate, and compare all possible *physical* information concerning the community. Under such inquisition the guilty route of infection can scarcely escape detection."

For these methods it must be said that they were scientific, logical, and exhaustive; but they were terribly laborious and generally exceedingly slow. Of course it sometimes happened that the guilty route of infection was stumbled on at once; and almost always this end was reached sooner or later, too often, however, only after weeks, months, or years of effort. Their ponderous slowness took these methods out of the class of effective emergency measures, and this was recognized even then, for typhoid investigation was not considered a matter of haste, in initiation or in execution.

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*Contact infection is the infection which radiates directly from the infected person through nose and mouth and bladder and bowel discharges. The hands of the infector and of his associates are the chief carriers of all these discharges, although mouth-spray and sputum also act in many diseases. Things directly infected by these discharges are also dangerous, but practically only while the discharges remain fresh and moist. The radius of action of contact is usually small; it compares with the radius of action of water, food, flies, and milk somewhat as a bayonet with a gatling gun in a general melee. But contact infection in the long run is more deadly than other routes, for to each one such "gatling gun" there are many "bayonets."

*We do not now use "general sanitation" even for fly outbreaks. From this old shot-gun prescription we have eliminated all the ingredients but one, that one which alone was active. In fly outbreaks we exclude flies from infected discharges, and (so far as the primary outbreak is concerned) then stop. So does the outbreak.

†Experts on epidemics.

These earlier methods paralleled somewhat those which we might suppose an amateur hunter to use, if he were commissioned to find a certain sheep-killing wolf. Confronted with this problem, the amateur might, not unreasonably, flood the surrounding mountains with assistants, instructing them to find all the existing wolf-trails, and to follow each such trail inward towards the slaughtered sheep until satisfied that it did, or did not, actually lead to them.

The methods of today are the exact converse of these. Instead of finding in the mountains and following inward from them, say, 500 different wolf trails, 499 of which must necessarily be wrong, the experienced hunter goes directly to the slaughtered sheep, finding there and following outward thence the only right trail,—the only trail that is there,—necessarily the trail of the guilty wolf.

So the epidemiologist of today, called to a typhoid-stricken community, at first pays no attention to the physical condition of the existing possible routes. It is sociological data, not physical, that he needs at this stage. He knows that, counting the wells, the toilets, the milk supplies, etc., there may be 500 of these possible routes; but he does not go to see them, nor even the pumping-station or the sewage-outfall. He goes, hot-foot, straight to the "slaughtered sheep"—straight to a patient's bedside. There, in thirty minutes, he reduces the 500 possibilities to, say, 10, i. e., to those encountered (a) *by this patient** (b) *at a certain time* (the date of his infection). These 10 are carefully listed; but the epidemiologist does not investigate even these 10. He goes, instead, straight to another bedside and lists there the, say, 10 routes that constitute the possible routes for this second patient; but he does not investigate the routes on this list either; *he merely compares the two lists.* Why? Because the one guilty route must be on *both* lists. Thus if both lists show the same water supply, that water supply remains a possible guilty route; but, if not, *water is eliminated.* If both lists show the same milk supply, that milk supply remains a possible guilty route; but, if not, *milk is eliminated.* Discarding thus the routes not common to both lists, 5 routes, say, still remain. At the third patient's bedside these 5 are reduced by similar treatment, to say, 3. So the search goes on until he either locates the one main public route common to all or proves that the outbreak is not due to such a public route at all, but to the private routes extending directly from person to person, i. e., to contact. Often in twelve hours of such work, generally in twenty-four, at most in thirty-six, the evidence is conclusive. The guilty route stands out convicted; for it is found on every list, and the innocent routes are exonerated, for they occur only on some.*

Now, at last, and not till now, does the epidemiologist deal directly with the route of infection thus indicated, examine it to find just how it is responsible, and thus provide the initial data for its remedy.†

It is at the point when the guilty public route is shown (if public route there be) that the epidemiologist, so far as this public route is concerned, step out, and the bacteriolgist, the chemist, the sanitary engineer steps in; one, or two, or all three, as conditions may require. (The parts these experts play in modern public health work will be described in later articles.)

But detecting and demonstrating the guilt of a main public route, when such is involved, by no means ends the epidemiologist's duties. The work outlined so far is required (in Minnesota) chiefly in typhoid outbreaks; and then chiefly in those typhoid outbreaks which are derived from water, food, flies, or milk. The work still to be done is required in *all* typhoid outbreaks, whether initially derived from these public routes or from contact; moreover, it is called for in the majority of outbreaks of all the *other* infectious diseases, because the majority are usually contact outbreaks at all stages. That work is *the prevention of further spread by contact.*

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*Of course imported and secondary cases are not used for this purpose, and at this stage the epidemiologist is most careful to eliminate all such from his tabulations.

*Obviously this method fails if there be but one patient, for then comparison of lists is obviously impossible; but single cases usually prove to be imported or from contact. Also it may happen that even three or four patients do not furnish sufficient data to narrow the possible routes to one; obviously, the more patients there are the more conclusive the results. But even when only a few patients exist, this method reduces the number of routes to be investigated to say, 10, often to 2 or 3, an immense reduction from the original 500.

†To those who are not familiar with modern public health work, this account may seem incredible or at least exaggerated, yet these are the regular procedures of emergency epidemiology wherever they are understood today. Records of such work in Minnesota for years back are open to all enquirers. Moreover, the above account has pictured the epidemiologist working under a most disadvantageous condition, i. e., in complete ignorance of the community he deals with, except for what he learns during the investigation itself. If previous familiarity with the affected community exists, the main public route of infection can often be determined without leaving headquarters, provided merely that correct data as to the number, location, and dates of infection of the cases are submitted. Of course such "long-distance epidemiology," wonderfully accurate though it can be made, does not compare in reliability or in finish of detail with actual personal investigation on the ground.

To understand this clearly, it must be remembered that under present conditions every typhoid, or other, epidemic which begins from some one public route (water, food, flies, or milk) soon presents two distinct parts; the primary outbreak, consisting of those persons who received their infection from that public route, and the secondary outbreak, consisting of those persons who later, by the private routes of contact, receive their infection directly from the first set. Those typhoid, or other, epidemics which *begin* from the private routes of contact do not, of course, present a "primary" outbreak at all. They are, so to put it, "secondary" outbreaks from the outset.

The search for a public route is therefore only the first step in subduing any epidemic. If such route exist, this step, by finding it, provides for getting rid of it, which prevents the infection of any more persons from that route, and so ends the primary outbreak. But this first step by no means ends the epidemic as a whole, for the persons already infected from that public route constitute each one a source of further spread by contact, a spread which must be prevented also. Obviously, epidemics which are contact epidemics throughout, necessarily present an identical problem from this standpoint, for every existing infected person, whatever the route of his infection, is a separate danger, and each requires supervision.*

How does the prevention of contact infection depend on epidemiology? Cannot the spread of infection by contact from *known* cases be guarded against by the attendants (nurses and physicians) which each such *known* case necessarily has? True, and were these *known* cases the only danger-points proper attention to preventing spread from them would be all-sufficient. But the *known* cases usually form but half of the danger-points because only half of the dangerously infected persons become *known* cases. The other half consists of "missed cases" (mild, unrecognized, and concealed cases, early cases, and, later on, convalescing cases) and of "carriers." (The "carriers" are infected persons, capable of infecting others, but not themselves made ill by the disease germs which they nevertheless carry and distribute.)

Missed cases and carriers, *unless especially sought for,* are, and remain, unknown and unlocated; they have no known attendants to whom the prevention of spread of infection from them can be entrusted; they generally do not know themselves to be infected; and, if ignored, they are more dangerous, because necessarily unguarded, than the known cases, for, being known, the latter can be guarded.

This problem, the finding of missed cases and carriers, is solved by an epidemiological procedure which, while less spectacular, is far more widely useful than that of finding public routes, because it applies, not alone to contact-typhoid outbreaks, but to all contact outbreaks, that is, to all infectious diseases, from tuberculosis down. Were the ability to find *public routes* of infection in water, food, fly, and milk outbreaks the only virtue of epidemiology, its services could have no value in the great mass of infectious disease for the great mass arises chiefly by contact. It is the ability to find the *private sources* of infection in *contact* outbreaks that makes epidemiology the pivotal factor of modern public health.

The location of missed cases and carriers in typhoid, and other, outbreaks, i. e., concurrent epidemiology, is therefore well worth understanding. Like emergency epidemiology it is based on real detective principles. (The methods will be described in the next article.)

SUMMARY

Modern public health practice for the control of infectious diseases consists, not in the *physical surveillance* of whole communities, but in the *sociological study* of the *infected persons* in them.

This practice is best illustrated in the modern handling of typhoid fever epidemics, because this disease is all-inclusive, i. e., it travels by all four of the great public routes (water, food, flies, and milk), as well as by the private fifth route, contact; also because typhoid is an intestinal infection and, of all the infectious diseases of this state, the intestinal infections *alone* travel by *all* of these five great routes.

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*In earlier days the fallacy that typhoid fever patients could not directly infect their associates—in brief, that typhoid fever was not contagious—was responsible for the long-delayed recognition of secondary typhoid outbreaks, even after the origin of primary outbreaks had been learned and methods of dealing with them perfected. We know now that abolishing or blocking a primary route is but half the story. The primary cases, if neglected, may continue to infect other persons by contact, and these again others, ad infinitum. Such secondary outbreaks may extend slowly for months or years and yield cases equaling or exceeding in number those from the primary outbreak. The "endemic typhoid" of some localities is at times an unrecognized, slow-moving, secondary outbreak.

A typhoid epidemic is approached, as is any other epidemic, first, to determine if any public route of infection is involved, and, if so, what that route is and how it operates, thus finding how to stop it; second, to determine the private routes and *sources* of the contact outbreak which, sooner or later, exists in all epidemics, whether the original route be a public route or not.

To the epidemiologist, the public health detective, falls both these crucial tasks. It is his function to find those underlying facts which alone can form a sound basis for real remedial measures.

How he performs the finding of *public routes* has been described; the finding of *private routes* and *sources* will be described later. In both procedures the initial step is the same, namely, the investigation of the known cases. By seeing and questioning *known* cases, or their immediate relatives and attendants, the epidemiologist can classify them into native and imported. The native cases, since they alone originated in the community under investigation, are further classified into primary and secondary cases. From the histories of the primary cases, if such there be, he learns the public route. From *all* the cases, imported, primary, and secondary, he obtains the data needed for the next step.

PROGRESS IN MEDICINE

Abstracts of medical reprints and articles on file in the library of the Department of Medicine, College of Medicine and Surgery, University of Minnesota.

UNDER THE CHARGE OF

DR. CHAS. LYMAN GREENE

Professor of Medicine and Chief of the Medical Clinic

These abstracts are read and discussed at the departmental meetings held monthly at the University Hospital.

A CONTRIBUTION TO THE PROBLEM OF THE THERAPEUTIC TREATMENT OF TUMORS THROUGH THE CIRCULATION, BASED ON CHEMOTHERAPEUTIC EXPERIMENTS ON TUMOR-BEARING ANIMALS

PROF. DR. VON WASSERMAN AND DRS. KEYSSER AND MICHAEL WASSERMANN, BERLIN

Medical Times, February, 1912, vol. XL

In approaching this problem the authors' object was to obtain a substance which, when introduced into the blood-stream, would destroy tumor cells without endangering the life of the diseased animal.

The systematic breeding of carcinoma and sarcoma strains of tumors having been carried on extensively by Ehrlich, Lewin, Bashford, and others in mice, these animals being selected for the experiments. From observations based on thousands of animals the authors first determined that no tumors which had reached the size of a small cherry or a plum-stone ever disappeared *spontaneously*. By pressure and pinching, softening and inhibition of a tumor-growth might be brought about, but such effects were soon followed by further growth and hardening. If ulceration were induced the tumor never disappeared entirely, the edges of the ulcer always remaining infitrated with tumor-tissues.

To test the viability of tumor-cells, sodium telluride and sodium selenide, which had been previously used for the same purpose by Gosio, were employed. These salts possess the property of forming a black or red deposit of the reduced metals in the presence of living cells. Freshly excised carcinoma was found to live as long in normal blood-serum as in blood from diseased patients, thus showing no special power on the part of normal blood to destroy living cancer cells. In both instances a deposit of the metal was observed and this particularly in places corresponding to the epithelial cells and in the interior portions (representing the most active elements of the tumor).

By *local* injections of solutions of selenium and tellurium salts directly into tumors in mice the authors were able to bring about softening and liquefaction with, in some instances, complete cure of the tumors.

They next tried the effect of giving tumor-bearing mice tellurium and selenium salts, as such, intravenously. Results were negative, presumably because the salts did not reach the tumors. To synthesize such compounds of these metals as would pass more or less directly from the circulation into the tumors became necessary. Hundreds of new chemical substances, having certain coloring matter of the fluorescin group as a medium for the rapid diffusion of the elements into the circulation, were prepared without noteworthy progress. Finally, a preparation composed of eosin and selenium was obtained, which, within ten days, would completely cure the ordinary-sized mouse-tumor. Softening followed by decrease in size and fluctuation, then, by rapid absorption, and, eventually, complete absorption were the steps observed.

It is to be regretted that the authors do not give the preparation of this eosin-selenium compound, but merely state that "certain chemical treatment" is necessary to make it active.

In the case of large tumors the mice usually fell sick and died as the result of the injections. This was evidently due to the toxicity of the resorbed tumor-masses. In apparently cured animals, kept under observation several months, no relapses occurred.

Autopsies on mice with tumors in the process of healing showed, in place of the tumor, an encapsulated lard-like detritus colored red (result of the eosin).

The effect of the eosin-selenium compound was tried on two mice with spontaneous tumors (that is, mice in which the tumor was not brought about experimentally by inoculation). In both the tumors disappeared, one being alive without a relapse three months after the cure, the other dying fourteen days after the disappearance of the tumor.

Upon the basis of these facts the authors are able to state with certainty that it is possible, with the aid of a specially prepared eosin-selenium compound introduced into the circulation, to bring about a softening and resorption of the *mouse* tumors, and if the size of the tumor is not too large in proportion to the body-weight of the animal, a complete cure without relapse.

They have not as yet approached the question of the effect of this remedy upon *human* tumors, and they wish to emphasize the fact that they have no basis to indicate that it will behave in a similar manner toward them. They believe, however, that biochemistry must be looked to for future progress in this field.

In connection with the above, The Boston Medical and Surgical Journal, February 1, 1912, vol. CLXVI, in an editorial on "Progress in Cancer Research," refers to Dr. E. F. Bashford's remarks in a recent lecture on "The Present Aspect of Some Cancer Problems." Dr. Bashford discussed fully the recent discovery of Wassermann relative to the treatment of cancer in mice, and "while recognizing the need of accepting its suggestion with caution, he expressed his belief that it probably represents an important and hopeful contribution to the progress of cancer research." The *Journal*, itself, believes that Wassermann's discovery marks the *first* important step toward a rational, non-surgical therapy of cancer.

E. T. F. Richards.

THE RECOGNITION OF CONGENITAL VISCERAL PTOSIS IN THE TREATMENT OF THE BADLY POISED AND POORLY NOURISHED CHILD

Joel E. Goldthwait and Lloyd T. Brown

American Journal of Orthopedic Surgery, November, 1911

Since Professor Stiller, of Budapest, first described a condition which he names *asthenia universalis congenita*, the subject has been discussed and emphasized from varying standpoints. The neurologist has come to see that many of his so-called cases of neurasthenia and hypochondriasis are examples of this congenital condition, in which a chronic malnutrition is the primary cause. The internist is already happily explaining many, in fact most, of his cases of gastric neuroses from this standpoint. The surgeon now admits that most of his cases of visceral ptosis have as their foundation to subnutrition of this nature.

Is it not safe to assume that all specialists, in direct proportion to their knowledge of this congenital asthenia, will explain many of the conditions which they find on this basis?

To the orthopedist, and to Goldthwait and his associates especially, we are indebted for explaining many of the articular troubles in adults, and the spinal curvatures, lack of poise, and deformities in children.

Dr. Goldthwait and Dr. Brown in this communication give as their object, not only the relief of such children, but indirectly the eradication of this type in succeeding generations.

They first lay emphasis on the fact that "one person in every five is born with the arrangement of the visceral supports as they exist in the quadruped," thus allowing the organs to "drag downward and lie more or less crowded together in the lower abdomen, with natural mechanical interference with their function." They also show that this condition is aggravated with age.

After considering the normal supports of the stomach and other organs, and the conditions resulting from their "downward drag," they proceed to explain how this abnormal drag results in a strain upon the diaphragm and its chief support, the cervical fascia, and to relieve which "the trunk is thrown backward at the waist, while the head and cervical spine are thrown forward." The results are disturbance of poise, flat chest, round shoulders, weakened muscles due to undue strain, flat foot, knock-knees, spinal curvature, etc.

As a proper basis for rational treatment the writers naturally emphasize a thorough examination and correct diagnosis. They further believe, and wisely so, that treatment should be directed not only to the local manifestation such as a flat foot, but also, and perhaps first of all, to the general condition.

For the local condition exercises are at times advised, while rest and proper support are more often necessary. For the general condition, which is really primary, periods of rest are recommended in which the patient assumes the horizontal position, lying on his back and allowing the organs to assume more their normal position. Supports under the back may be used to further draw the stomach upward. These postures are advised to be taken for half an hour after each meal, but especially after the noon meal.

A small abdominal pad, or even a back-brace, are used when the patient is up and around. The use of a pillow under the head is advised against, while it is often better to elevate the feet and legs. Massage, passive exercises, bathing, and forced feeding are urged. In extreme cases an absolute rest and nutrition cure extending over a period of several weeks or months is necessary.

The prognosis, assuming that proper treatment has been carried out in each case, is expressed in the following words: "While the normal anatomic condition can never be obtained, nevertheless, it is reasonable to expect that the increase of the difficulty can be controlled and that reasonably vigorous health will be the result."

L. D. Bristol.

THE RELATION OF CARDIAC IRREGULARITIES TO TREATMENT

A. W. Hewlett, M. D., Ann Arbor, Mich.

Journal American Medical Association, November 4, 1911

In a very readable and interesting paper the author presents the importance of cardiac irregularities not only from a therapeutic but also from a diagnostic and prognostic standpoint.

It is emphasized that an irregular heart cannot carry on the work which could easily be accomplished by the same heart-muscle acting regularly.

The discussion of the relation of cardiac irregularities to treatment is limited to the more important forms and the influence exerted by drugs.

Among irregularities due to nervous causes he states that those of vagus origin in young persons, neurotic individuals, and after infectious disease, are usually favored by digitalis. He has seen large doses of atropine bring about complete or partial disappearance, but does not recommend its use therapeutically. In heart-block the author strongly urges digitalis, but only in cases of complete block, saying that in partial heart-block the tendency is to increase the delay in transmission of impulses from auricles to ventricles.

By extrasystole is meant contractions which originate in parts of the heart-muscle other than those normally governing its rate.

They are extremely capricious, and it is difficult to judge the effect of drugs. Digitalis is indicated because it brings about a disappearance of extrasystole by lessening of cardiac irritability. Besides drugs general symptomatic treatment must be carried out.

In the most important and serious form of cardiac irregularities, known as auricular fibrillation, the author states that for the most part it is a permanent condition. However, he agrees that the members of the digitalis group are the most useful.

Digitalis lessens the excessive number of stimuli passing from the auricles, and also increases the tone of the vagus control.

Dr. Hewlett mentions the meager knowledge concerning various heart irregularities and their treatment, and urges further investigation.

Those especially interested he would refer to two articles in the recent literature. Mackenzie (Heart, 1911, II 273) discusses 43 cases of various cardiac affections treated with digitalis. La Franca (*Zeit. f. Experimental. Pathologie und Therapie*, 1911, IX, 427) from experimental and clinical observations has formulated the therapeutic actions of various heart remedies.

F. A. Olson.

PHLEBITIS MIGRANS, WITH REPORT OF A CASE

W. W. Herrick

American Journal of the Medical Sciences, December, 1911

W. W. Herrick places on record a case of migratory peri-vascular inflammation occurring in a woman past 60 years. She had passed through three normal labors, the last followed by right femoral thrombosis.

During six and one-half months, there were 12 inflammatory processes involving superficial veins of the lower extremities and epigastrium and continuing for a few days to several weeks. Each process was accompanied by all the cardinal symptoms of inflammation. The areas varied from ¾ in. in width to 1 to 4 in. in length, often with small superficial veins more prominent than usual and slight localized edema. No fever or other systemic efforts were noted.

Prolonged study failed to assign a cause. The author inclined toward a toxic condition from defective metabolism. The condition has been recognizel as a clinical entity but rarely.

Neisser and Schwartz and Blumer report cases in which they examined the affected vessels microscopically finding the outer and middle coats affected.

Dr. Herrick concludes that a migratory phlebitis exists as an entity and should be recognized as such because of the diametrically opposite treatment it should receive when compared with thrombophlebitis.

He believes as more cases are reported it will be recognized with greater frequency. F. A. Olson.

ZUR KLINIK DES INTERMITTIERENDEN HINKENS

Prof. Wilh Erb, Heidelberg

Munchener Medizinischen Wochenschrift, No. 47, 1911

The last of Professor Erb's reports concerning this interesting condition, a knowledge of which we so largely owe to his investigations, is devoted to a study of the incidence of this form of arteriosclerosis in the users of tobacco. It includes statistics based upon 500 cases, representing persons of the educated middle class, the aristocracy, and Professor Erb's international clients (internationalen klientel).

He classifies the conditions under five rubrics:

1. Those who use no tobacco,
2. Those using so little as to be properly included in No. 1.
3. The moderate smokers who consume from 3 to 6 cigars and 10 to 15 cigarettes daily,
4. The intemperate smoker, using from 7 to 12 cigars and 15 to 40 cigarettes daily.
5. The excessive smoker, who is credited with from 13 to 20 strong cigars or 40 to 100 cigarettes daily.

Of the 500 cases he found that with respect to the above named groups they were divided as follows, including the non-smokers and the negligible smokers in one group:

Groups 1 and 2 combined,	44.8 per cent.
Group 3	31.6 per cent.
Group 4	17.8 per cent.
Group 5	5.8 per cent.

He does not pretend that these figures can give exact determinations, and he mentions the difficulties represented by nationalities in regard to habits of life as a disturbing influence. He finds the Russians the heaviest smokers of the group, especially with regard to the excessive use of cigarettes, though he finds this steadily increasing among Americans and Germans also.

In tabulating the percentages in relation to his cases of "intermittierenden hinkens" occurring in this group, he reaches very striking results.

Of 14 such cases seen since the autumn preceding the writing of his report, no less than 28,6 per cent were excessive smokers, 50 per cent were heavy smokers, 14 per cent were moderate smokers, and only 7 per cent non-smokers. In other words, the heavy and excessive smokers together represented 11 of the 14 cases, or 78.6 per cent, though representing but 23.6 per cent of the 500 patients under observation during the same period. In this group of 14, moreover, syphilis occurred but 4 times; the excessive use of alcohol but once; moderate use of alcohol, 9 times; while 4 cases occurred in total abstainers. Gout and nephritis each appeared in 1 case.

The figures are certainly interesting. The entire paper is extremely illuminating and the subject beautifully presented. C. L. Greene.

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APRIL 15, 1912

THE STATE ASSOCIATION MEETINGS

The North Dakota Association meets at Valley City on May 13, 14 and 15.

The South Dakota Association meets in Mitchell on May 21, 22 and 23.

The Minnesota Association meets in Duluth on August 13, 14 and 15.

The work accomplished by an organized profession today is so much in advance of the work done by such a profession a few years ago that no comparison can be drawn between the two. Those who read papers at our present-day meetings and those who discuss such papers present the best thought of the best minds working upon the problems of the profession; and the progress of the year is often better set forth in a paper and its discussion than in any book or periodical dealing with the same subject. Here every assertion not tenable is open to denial, and every obscurity in or omission from a paper may be cleared up by a question. In this manner information is conveyed from mind to mind in a manner never possible by the printed page.

These meetings are indeed worth while, and the men who attend them are amply repaid for the time and expense of attendance.

The meetings of the Western associations particularly, grow better each year, and the change is manifest most markedly in the shortening of papers read with an increase in the amount of discussion. This means a large increase in both the interest and the information resulting from the presentation of the various subjects on the program.

PUERPERAL PSYCHOSES

There are many dangers to which the pregnant woman is exposed that are usually passed by or unnoticed.

For instance, Kohn, Erdheim, and Stumme have noted the fact that the pituitary gland is always enlarged during pregnancy and in a measure is analagous to a mild form of giantism or overgrowth.

The body of the pregnant woman usually increases in weight, partly from the fact that she is growing a new body within herself and partly due to the over-activity of the pituitary and other glands associated in metabolism.

This incident may account for the suddenness with which the general weight of the body is increased during pregnancy and lactation.

In many undersized and ill-nourished women a pregnancy is highly beneficial, and the improvement in weight and appearance is maintained through life. The essential stimulant to normal metabolism may be due entirely to glandular activity prompted by the introduction of new physical advancement. In many women where there is an inherent tendency to mental disorders this pregnant factor may become a disaster, at least for a time, varying from a few weeks to a few months. In such cases the stimulations to the ductless glands produce a toxic or a hypersecretive state, which ends in a decided change in character or in the development of a mild or furious form of insanity.

In many of the puerperal psychoses the period of gestation is indirectly a cause of the mental disturbance through a general upheaval in the nervous system.

Jolly believes that the percentage of hereditarily predisposed individuals is essentially the same among pregnant and non-pregnant women who develop psychoses.

In those who show excitement or depression, or a combination of both forms of mental condition, there is no special tendency toward recurrence. Both have a favorable prognosis as a rule. The prognosis, however, in those who are inherently unstable and in whom the heredity and environment are bad is uncertain, although recovery may occur without serious or apparent mental reduction after one or two years. In cases in which catatonia is present the outlook for improvement is not good; a few recover even if the catatonic state is extremely pronounced. A congenital defect or an insanity in young life makes the prognosis unfavorable in cases in which alterations of mental equilibrium are pronounced during pregnancy. Women over thirty do not recover as promptly as those under thirty. The favorable cases are those which develop within two weeks after a confinement and in those who suffer from infections or exhaustion.

Persistent anemias covering a period of three or more years, occurring at about the thirtieth year and complicated by an unexpected and unlooked for pregnancy, are particularly liable to manifest a mental disorder from which they are slow in recovering even though the anemia improves and the menstrual life is resumed.

We have yet much to learn of the part played by the ductless glands in the production of nervous and mental disease. The day may come when we shall be able to recognize the first offending gland which refuses to perform its functions and to supply the individual with an artificial product.

The use of the dried thyroid extract in suitable cases has restored many seemingly defective children, and it is quite within the range of therapy that other glandular substances may be employed which will carry on the work of a crippled pituitary or adrenal gland. The use of ovarian extract has relieved the nervous irritability and instability of many a woman who suffered the removal of her ovaries in the old-time operative methods.

THE MODE OF TRANSMISSION OF INFECTIOUS DISEASES

An editorial in the March issue of a leading medical journal, commenting on our ignorance of the cause and cure of chickenpox, scarlet fever, and measles, includes their modes of transmission as still undetermined; yet the same editorial, quoting the work of Goldberger and Anderson on measles, shows that *contact* is the route.

True enough, contact is not as definite a conclusion as we could wish. "Contact" does not define just what discharges are the guilty ones, nor just how they are transmitted; but the same experiments by inoculations proved that buccal and nasopharyngeal secretions were virulent. Our clinical experiences are thus confirmed, and we are left assured that, since we know just how these discharges are transmitted, we know also at least the most important methods. Were all our knowledge of the diphtheria bacillus wiped out today, except that it is found in throats and noses of the infected persons, our knowledge of the measures needed for control would not be affected. Were the typhoid bacillus proved not to be the cause of typhoid fever, our present preventive principles would not be upset. So in measles, the lack of knowledge of its cause and cure does not prevent the recognition of its means of spread. The same is true of all the exanthemata.

Every member of the medical profession, we fear, has not yet been sufficiently impressed with the facts set forth in the series of papers on "The New Public Health" now running in our columns; and we also fear that the series has not attracted the degree of attention and commendation in the Northwest given these articles by medical men and the professional and lay press in other parts of the country. A large number of papers in the Northwest have copied the article, in whole or in part; and we make the above assertion only because the number of such papers is not large enough, and because of the high praise given the series by experts outside of the Northwest.

SALUTE THE DOCTOR

In a recent issue the *Chicago Tribune*, in many respects the foremost newspaper in America, and pronounced by many competent judges the equal in every respect of the *London Times*, thus speaks of doctors:

> Today, although the dread disease known as cholera has its deathly finger tips on the edge of the continent, there is no dread in America. We ought to stop and think what that means. Twenty—perhaps ten—years ago the report of one death by cholera in New York or New Orleans would have sent a cold chill up the spine of the nation. Forty years ago it would have meant the death of hundreds of thousands. Today it means a stricter guard at our gates, a few more measures of surveillance, a few headlines, a few obscure deaths, and nothing more.
>
> That is what science has done for us. That is what preventive medicine and sanitation have done for us. Smallpox, yellow fever, cholera, the plague—these fell invaders have been beaten back. The fight is along the line. Dip the colors to the doc-

tor; the national salute, every gun, to the soldier with the microscope.

Will the "League for Medical Freedom" stand in the presence of this national salute with bared or covered head? To be consistent, it will stand with covered head, and thus calmly accept a large share of the responsibility for the spread of this and other plagues, local and national.

Only the motives or the lack of sanity of such men and women can explain such action; nothing else will.

MISCELLANY

IN MEMORIAM

Robert R. Rome

By the Hennepin County Medical Society

Whereas, Dr. Robert R. Rome, for many years a member of the Hennepin County Medical Society, has been called to rest from his labors, therefore,

Be it resolved, that the Society, in stated meeting assembled, express its appreciation of the character and life-work of Dr. Rome as a physician, a teacher, and a citizen of upright and honorable character, and,

Be it further resolved, that the Society hereby tender heartfelt sympathy to the family of Dr. Rome in their bereavement, and

Be it resolved, that a copy of these resolutions be sent to Mrs. Rome and family, and be recorded in the transactions of the Society and published in The Journal-Lancet.

REPORTS OF SOCIETIES

RICE COUNTY SOCIETY

The Society met at Faribault on March 29th.

Dr. C. Eugene Riggs, of St. Paul, read a paper on "Some Things in Serodiagnosis," and Dr. James T. Christison, of St. Paul, read a paper on "Infant-Feeding and Nutrition."

Drs. W. P. Lee and Laura A. Lane, of Northfield, were elected members.

Fred U. Davis, M. D., Secretary.

THE HENNEPIN COUNTY SOCIETY

The Society held a stated monthly meeting on March 4th. President C. H. Bradley in the chair and 50 members present.

Dr. H. W. Jones presented a case of tumor of the head, exhibiting the extracted tumor, which weighed seven ounces.

Dr. R. E. Farr read a paper on "Transverse Abdominal Incisions," and Dr. A. C. Strachauer read a paper on "Rectosigmoidoscopy." Both papers were discussed at length.

Drs. D. A. MacDonald, H. P. Linner, C. H. Laws, Looe Baker, and W. W. Feidt were elected to membership.

E. J. Huenekens, M. D., Secretary.

THE MINNESOTA NEUROLOGICAL SOCIETY

The society met on Thursday, January 25th, at the Town and Country Club. Dr. Dunning presented a patient with progressive muscular dystrophy of the Landouzy-Dejerine type, of four years' duration.

Dr. Crafts presented a patient with Marie's type of cerebellar ataxia, in whose family three other cases of the same disorder had occurred.

Dr. Hamilton reported a case of Friedreich's type of ataxia in a boy of thirteen without other similar cases in the same family.

The March meeting was held on the evening of the 28th, also at the Town and Country Club.

Dr. Hamilton presented the patient with Friedreich's ataxia, reported at the last meeting.

Dr. H. W. Jones reported a case of multiple sclerosis in a man of twenty-seven. At eighteen he had showed signs of right motor involvement, and after a severe injury at twenty he developed a universal myotonia, which has since continued.

Dr. Hammes exhibited a brain with a large round-cell sarcoma, of the left third temporal convolution, from a patient who had suffered from mental disturbance for five years.

Dr. Johnston reported on some recent histologic work on the posterior root ganglia and nerves. It has long been known that the number of ganglion cells is much larger than the number of supposed corresponding nerve fibers. This recent work shows that considerable more than half of the ganglion cells are small, and that the processes of these small cells are only slightly, or not at all, myelinated, or the myelin sheath extends but a short distance. These processes are found in large numbers, and their presence explains the apparent discrepancy between the number of cells and the number of fully myelinated fibres. It is possible that Lissauer's bundle is made up of these incompletely myelinated fibers.

Dr. Scott gave a report on Crile's article, in the *Boston Medical and Surgical Journal*, on shock. According to Crile the activities of the nervous system are of three classes, one of which is concerned with self-defense. Under this latter are all the reflex activities. Shock is dependent on the discharge of energy from the nerve cells having to do with the reflexes. By applying cocaine to the nerves, for example, after an operation, he prevents impulses being carried to the nerve cells and the subsequent discharge of energy through the reflexes, thus preventing shock. He explains the use of morphine to dispel fear and thus prevent shock, on the basis that it prevents the discharge of energy through the reflexes.

A. S. HAMILTON, M. D., Secretary.

NEWS ITEMS

THE ATLANTIC CITY MEETING

All Northwestern men who are going to the A. M. A. meeting at Atlantic City are urged to send their names to the Transportation Committee in care of the *St. Paul Medical Journal* or THE JOURNAL-LANCET.

Dr. M. H. Marken has moved from Dawson to Boyd.

Dr. N. A. Nelson has moved from Clarkfield to Dawson.

The new hospital at Dickinson, N. D., was dedicated on March 31st.

Dr. F. W. Green, of Seneca, S. D., will move to Bruno, Minn., next month.

Dr. A. J. Heimark, of Finley, N. D., is doing post-graduate work in Chicago.

Dr. C. W. Taylor, of Duluth, has returned from Europe where he has been several months.

Dr. John H. Rishmiller, of Minneapolis, has gone to Johns Hopkins for a few weeks of work.

Dr. L. J. Green has been appointed resident physician of the Minnesota State Reformatory at St. Cloud.

Dr. George Earl, of St. Paul, accompanied by his wife, has gone to Europe, and will remain until December.

Dr. E. J. G. Schultz, of White Rock, S. D., has formed a partnership with Dr. A. A. Sorenson, of Aberdeen, S. D.

Dr. J. B. White has moved from Montgomery to Jordan to become physician of the new sanitarium at that place.

Dr. H. J. O'Bryan, of Watertown, S. D., has returned from New Orleans, where he spent several months in the Polyclinic of that city.

Dr. Christopher Graham, of Rochester, has given a valuable tract of ground adjoining the city to the Olmsted County Agricultural Association.

Dr. N. H. Klein, of Hebron, N. D., has sold his practice to Dr. A. F. Schierbaum, of Des Moines, Iowa, and will spend a year in Europe in medical work.

Dr. O. H. Hall, of St. Paul, died on April 2d at the age of 71. Dr. Hall came to Minnesota in 1868 and located at Zumbrota. He moved to St. Paul in 1896.

An Infant Welfare Society has been organized in Minneapolis. Special attention will be given to the education of mothers and to a propaganda for breast-feeding.

The statement in our last issue that the South Dakota Association would meet next month in Aberdeen was a mistake as regards the place of meeting, which is Mitchell.

Dr. Thomas N. McLean, of Fergus Falls, died last month at the age of 53. Further notice of his life and work will appear in a later issue of THE JOURNAL-LANCET.

As a result of the agitation over the conditions of the Indians in Minnesota, a $20,000 hospital is to be built at once on the White Earth Reservation, to accommodate sixty patients.

Dr. H. R. Kenaston, of Gregory, S. D., has been appointed by the governor of South Dakota a member of the S. D. State Board of Health, to succeed Dr. W. H. Lane, of Miller.

Dr. D. E. McBroom, of Northfield, has purchased the practice of Dr. E. V. Smith, of Adams. Dr. Smith will spend two or three years in the Mayo Clinic in preparation for surgical work.

The American Journal of Surgery will make its June issue a "Greater New York Number," and will publish papers by many of the most eminent surgeons in Greater New York. It will doubtless be a valuable number.

Dr. C. O. Barney, of Rochester, has been elected a member of the Omega Alpha Medical Society of American Medical Colleges. To gain this degree, conferred only for meritorious work in medicine, is a distinguished honor.

Dr. Gustave Demars, of Hallock, died last month at the age of 76. Dr. Demars was one of the old-time practitioners of Minnesota, and was a man of most genial disposition, greatly beloved in the communities where he practiced.

The nurses of St. Mary's Hospital at Rochester have the assurance that before another year they will be enjoying the comforts of a handsome nurses' home, which is to be built on the commodious grounds of the hospital building.

Plans for an office building for the Mayo staff at Rochester are nearly complete. The building will occupy a quarter of a block, and will be as complete in design as the staff can make it. We hope to give the details of the plan in an early issue.

The Minnesota alumni of Jefferson Medical College are requested to send their names to Dr. R. J. Hill, Reid Corner, Minneapolis, that he may send them information about a meeting of the Jefferson Alumni Society to be held in Minneapolis on May 8th.

Drs. W. J. Mayo, Christopher Graham, and Donald Balfour, of Rochester, accompanied by members of their families and others, have gone to Germany for a three months' trip. Dr. Mayo, upon his return, will give our readers an account of the German hospitals visited by him.

PARTNERSHIP IN TWIN CITIES WANTED

A Rush graduate of a dozen years' experience in private and hospital practice, formerly connected with an Illinois training-school as professor of obstetrics, and at one time associated in practice with an eminent Rush professor, and specially skilled in case-taking desires a partnership with a Twin City physician of large practice. Will pay a proper price for the partnership. Address P. M., care of this office.

FOR SALE

The instruments, office fixtures, and furniture of the late Dr. George M. Coon of St. Paul. This offers an exceptional opportunity for any one wishing to take up the specialty of Skin and Genito-urinary work, as Dr. Coon had a wide acquaintance and a large following. Address inquiries to Mrs. Edith N. Coon, 916 Hague ave., St. Paul, Minn.

PRACTICE FOR SALE

My practice in the finest location in east central South Dakota is offered for sale. For full information address H. H., care of this office.

SUBSTITUTE POSITION WANTED

An experienced physician, graduate of a high-grade medical school and 32 years of age, would like to substitute and take care of some doctor's practice while away until September. Best of references. Please state all particulars in first letter. Address R. P., care of this office.

PRACTICE FOR SALE

The practice of the late Doctor Robert Rome, 700 Donaldson Bldg., Minneapolis, is offered for sale, with or without furniture and equipment. Dr. Rome was in general practice in Minneapolis for 17 years and in surgery 4 years. For particulars, address J. M. R., 706 Donaldson Bldg., or telephone Harriet 52, Minneapolis.

ASSISTANT WANTED

A physican in general practice in a Minnesota village wants an assistant. A good opening for the right man. Address S. K., care of this office.

DESK AND CASE-RECORD FOR SALE

For Sale, an American Case & Register Company desk, with case-record and book-keeping system combined. Desk 5 feet long and 42 inches high; oak finish. Address Dr. H. G. Norton, 920 Rice street, St. Paul.

BOOKS FOR SALE VERY CHEAP

1 set, 16 vol., cloth, "Works of Theodore Roosevelt"	$15.00
1 set, 12 vol., cloth, "John Fiske's Misc. Writings"	24.00
1 set, 12 vol., ½ Morocco, Grand Sicle Edition "Twentieth Century Cyclopedia and Dictionary"	19.50
Bryant's Operative Surgery, 2 vols., ½ Morocco	10.00
Peterson & Haines, "Legal Medicine and Toxicology," 2 vols., ½ Morocco	12.00
Burnett, Ingals & Newcombs, "Diseases of Ear, Nose and Throat," 1 vol. cloth	5.00
Tuttle's "Diseases of Anus, Rectum and Colon," 1 vol., ½ Morocco	6.50
Butler's "Diagnosis of Internal Medicine," 1 vol., ½ Morocco	6.50
Johnson's "Surgical Diagnosis," 3 vols., ½ Morocco	21.00
Ochsner's "Clinical Surgery," 1 vol., cloth	4.00
Vol. 1, 2, 3, Osler's "Modern Medicine"	21.00
Total	$144.50

All of these books are as good as new; some have not been opened. I offer the lot for $50. Address B. R., care of this office.

An Announcement

Battle Creek, Mich., February 21, 1912.

To Our Friends:

Upon February 16th, 1912, the Appellate Division of the Surpreme Court of the City of New York reversed and set aside the verdit for alleged libel secured in December, 1910, by Robert J. Collier against the Postum Cereal Co., Ltd.

Since the original verdit Collier's Weekly has published repeated attacks upon this Company. We have made no reply, preferring to await the decision of the courts.

This company was sued for libeling Collier in a reply we published to a previous editorial attack by the Weekly. In that reply the Postum Co. questioned the motive of the Weekly in making such editorial attack and branded as false the charges made by the editorial, which editorial the court now construes as containing two specific charges, viz: as to using fictitious endorsements and erroneous statements as to appendicitis.

In deciding the case Mr. Justice Miller, who wrote the majority opinion of the court, in referring to the editorial charges, said:

"I am unable to find in the the voluminous record before us any evidence whatever of the publication by the defendant of such fictitious endorsement, and to say the least it is open to argument whether any of the defendant's advertisements could fairly be construed as making a claim that Grape-Nuts would cure appendicitis."

The Postum Co. insists that all it claimed in its advertisements was that the use of Grape-Nuts as a food—before the attack---and because of its easy digestibility, would in many cases ward off an attack of appendicitis.

The Appellate court holds that Collier succeeded in "bridging over the weakness" of his case by introducing a large amount of irrelevant and improper testimony. In concluding, Mr. Justice Miller, speaking for the court, said:

"The error was fundamental and permeated the whole case, and it seems to me that we cannot sustain this judgment without virtually holding that in a libel case either party is at liberty to attack the other, wholly regardless of the issues in the case."

Yours truly,

POSTUM CEREAL CO., Ltd.

PUBLISHER'S DEPARTMENT

AN INTERESTING ANNOUNCEMENT IS MADE IN THIS ISSUE BY THE H. K. MULFORD COMPANY CONCERNING MENINGO-BACTERIN (MENINGOCOCCUS VACCINE)

Bacterin therapy is long past the experimental stage, and the immunizing effect of typho-bacterin, for instance, is thoroughly established, the results from its use being sufficient evidence of the worth of this method of controlling the spread of typhoid fever. Remarkable results likewise have followed the use of cholera-bacterin and it is hoped that equally good results will follow the use of meningo-bacterin in controlling epidemics of cerebrospinal meningitis. While immunizination with Meningo-Bacterin has thus far been used in relatively few cases it is entirely reasonable to believe that it will prove a most valuable aid in the suppression of epidemics of cerebrospinal meningitis.

Like the other bacterins Meningo-Bacterin is a suspension of the killed bacteria in normal saline solution (0.85 per cent). The cocci are grown upon a serum agar for about 24 hours, then washed off and suspended in salt solution. They are counted by Wrights method to determine the number of cocci in one cubic centimeter of the suspension, then killed by heating to 60° C. for one-half hour. After dilution of the thick suspension with normal saline solution (0.85 per cent) so that the two strengths are obtained, the now completed bacterin is subjected to rigid aerobic and anaerobic tests to assure the absence of live germs or spores. Guinea-pigs are also injected to be certain that there are no harmful substances in the bacterin. Trikresol (0.25 per cent) is used as the preservative.

Meningo-Bacterin is polyvalent i. e., a number of different strains of meningococci are used.

DIRECTIONS

The usual site for inoculation is the arm at about the insertion of the deltoid muscle. The dose is given subcutaneously and not into the muscle nor into the skin. An area about the size of a five-cent piece is painted with tincture of iodine. The syringe needle is plunged through this area. No after treatment is necessary.

The complete immunization treatment consists of three doses given at intervals of from five to ten days. The first dose is 500 million, the second dose 1,000 million and the third dose 1,000 million.

For children smaller doses should be used according to weight. It has been suggested that the unit of body-weight for a full dose be considered 150 pounds.

THE BEEBE BIOLOGICAL LABORATORIES

Dr. Beebe reports a very gratifying increase of work in his laboratories, located in the Detroit Building, St. Paul. This means that the laboratory aids to diagnosis are being used by physicians in all parts of the Northwest as never before, and that the public laboratory has a field of large usefulness.

We heartily commend this work.

THE WAUKESHA SPRINGS SANITARIUM

There is in the West no sanitarium for nervous cases that stands higher with the medical profession than the Waukesha Springs Sanitarium, conducted by Dr. Byron M. Staples. The new fire-proof building is a model of design and construction, and the surroundings are most beautiful. It is always a pleasure to commend such institutions as this, for there is practically no chance of dissatisfaction on the part of any patient who may go there.

GRAPE-NUTS

In all conditions of weakened digestive powers, from any cause, Grape-Nuts, for many well-understood reasons, is an ideal aliment. It requires thorough mastication, to begin with, and this starts the digestive juices flowing. Being made of whole wheat and malted barley, it is so easily digested as to require very little energy on the part of the weakened digestive organs. It is, therefore, available for nourishment when most other foods are too heavy or require too long a time for absorption. Grape-Nuts is usually absorbed in about one hour.

The agreeable, neutral flavor of Grape-Nuts admits of this food being readily combined in the way of puddings, dressings, and so on, with other desired articles of food.

MEYROWITZ

If you want a kodak, go to Meyrowitz.

If you want an eyeglass that fits, that gives comfort, and that preserves the sight, go to Meyrowitz.

If you want anything in the optical line, go to Meyrowitz.

Meyrowitz makes the best optical goods and carries in his St. Paul and Minneapolis stores many things that he does not make.

The name Meyrowitz stands for perfection in all he manufactures and for the best in all that he sells.

THE ST. JAMES HOSPITAL AND SANITARIUM

In spite of the somewhat stringent times, the St. James Hospital and Sanitarium, located at St. James, Minn., with one of the finest and largest buildings devoted to hospital and sanitarium work in the Northwest, has made splendid progress since the day it opened; and year by year its field of operation is enlarging. Its staff, active and consulting, is composed of high-grade men; and the work of the institution is such as the Northwest stands in need of.

CARABAÑA

CHRONIC COLITIS

and its train of toxemic ailments due to absorption of intestinal poisons show marked improvement from almost the initial dose of **Carabana.** Used regularly, the tormina, tympanites and other symptoms of intestinal putrefaction and fermentation promptly disappear and the patient's whole condition is markedly improved.

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THE
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THE CANCER PROBLEM*

BY J. CLARK STEWART, M. D.
Professor of Principles of Surgery, University of Minnesota
MINNEAPOLIS

All statistics show a remarkable increase in deaths from cancer in the past twenty-five years. Adami states that in San Francisco the death-rate from cancer increased seven fold in thirty-two years from 165 to 1,036 per 100,000. In Boston the rate trebled between 1863 and 1887 New York doubled in eleven years; England shows one hundred and fifty per cent increase in twenty years; Germany, two hundred and sixty-six per cent in nineteen years. In all parts of the world the death-rate is increasing, and younger persons are being attacked. There seems to be no way of explaining away these statistics, and the fact must be accepted that cancer is markedly on the increase.

In the absence of all knowledge as to the cause of cancer, and a logical therapy based upon a known etiology, we must combat this increasing plague of cancer by the methods now at our disposal. At the present there is only one known means for the cure of cancer, and that is its entire removal or destruction before dissemination has taken place. As we have no means of telling just when dissemination has begun, all operations must be so planned as to secure the best result, even if local infection has taken place.

Cancer grows, first, locally with infiltration of the tissues immediately surrounding it; then the lymphatics are infected, and cancer locates in the nearest lymph-nodes; later it reaches the blood-stream, and multiple metastases take place.

Cancer is curable by a proper operation in the first two stages, but incurable by any means in the last. A proper operation against cancer must be so planned as to remove the original cancer, all local infiltration, and the whole lymphatic system, with the nearest group of lymph-nodes, all in one piece without section. Such operations properly planned and executed give over thirty per cent of cures in all parts of the body. The best illustrations are in the breast and lower lip, the stomach and the rectum. In all of these regions a proper operation can be done, and the results are most gratifying. In cancer of the uterus the proper operation can be done, but the immediate mortality is so high (thirty-three and a third per cent) as to detract from its advantages. All these operations secure their best results in cases brought to operation early.

This brings up the question of diagnosis, and how cases can be secured for early operation. Most cases of cancer, when easily diagnosible, are practically inoperable, so we must not wait until such diagnosis can be made. All statistics on this subject show certain clear facts which we can take advantage of, to secure removal before diagnosis can be made except by the microscope. These facts are that, in people over thirty-five, ninety per cent of all growing tumors are cancer, hence all growing tumors should be removed, and diagnosed by the miscroscope. In this way only can early operation be attained and the rate of cure increased.

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*Read before the Hennepin County Medical Society, April 4, 1912.

The technic of the operative treatment of malignancy can be but little improved, and our future results can be improved only by earlier operations. To obtain this, education of the public and the profession is necessary, so that both will accept the facts cited above. No one in the profession has a right to say or admit that cancer is not curable by the knife, because he has no right to be ignorant of the fact, and still less has he a right to do a partial operation, such as the simple removal of a cancerous breast or a V operation for cancer of the lip, because, by so doing, he lessens his patient's chance of life at least twenty-five per cent.

Small tumors of the breast should always, if possible, be removed where microscopic diagnosis can be made at the operating-table, and a radical operation done at once if necessary, as the removal of the tumor for diagnosis, followed by a radical operation some days later, does not give as good results. The Meyer operation, with removal of all skin covering the breast, the pectoral muscles, and axillary contents in one unbroken mass, is the accepted radical breast-operation, and nothing less should be done in any case of malignancy.

In the lip no V operation should be done, but the lymph-nodes of the submental and submaxillary groups, together with the submaxillary salivary glands, should be removed in all cases. Such methods increase cures by at least thirty per cent, and this thirty per cent has a right to the best chance possible.

Local treatment of cancer by caustics, the *x* ray, etc., is to be deprecated, except in slow-growing epitheliomata of the face. In these tumors situated on the eyelids, ear, or nose, *x*-ray treatment gives good results and is to be preferred to other means on account of the good cosmetic results, but in other regions should be reserved for inoperable cases.

CONCLUSION

1. Cancer is increasing in prevalence rapidly.
2. It is curable by early radical operation.
3. All growing tumors in patients over thirty-five must be proved non-malignant by the microscope.
4. Partial operations are criminal in depriving the patient of his rightful chance of life.
5. Education of the laity to the early removal of small-growing tumors is necessary to improve our rate of cure.

SOME IDEAS ON ABORTING GONORRHEA*

By Franklin R. Wright, M. D.

MINNEAPOLIS

Attempts to abort gonorrheal infection are usually failures. The first half inch of the urethra, that is the fossa navicularis, is lined with stratified pavement epithelium, and the remainder of the pendulous portion with columnar cells. Infection takes place in the fossa navicularis. The pavement epithelium of the fossa navicularis offers a certain resistance to the invasion of the gonococcus. The gonococci grow on the surface and between the superficial cells, but never pass through the pavement epithelium into the subepithelial tissue. The length of time required for the infection to spread the length of the fossa navicularis is three to four days. During this time the discharge from the meatus is thin and of a milky-white color. Under the microscope it is seen to contain large numbers of pavement epithelium cells, and a very few pus cells. When the infection passes over the boundary of the fossa navicularis onto the columnar epithelium the picture changes. Here the gonococci grow not only on the surface, but also pass through the epithelium and penetrate and multiply in the subepithelial tissue. The growth of the gonococci in the subepithelial tissue is followed by an active inflammation. The discharge from the meatus changes. It no longer remains thin and milky-white, but becomes thick and creamy in character, and yellow in color. Under the microscope it is found to contain large numbers of pus cells, and with but few pavement epithelium cells.

The appearance of the pus at the meatus is a positive indication that the gonococcus has invaded the subepithelial tissue. If attempts to abort the disease are to meet with success, they must be made within 48 to 72 hours after the first appearance of the symptoms, that is, while the growth of the gonococci is still confined to the pavement epithelium of the fossa navicularis. After the gonococci have reached the columnar cells and have entered the subepithelial tissue all such efforts are hopeless. We have no remedy that will penetrate the living tissue and destroy the gonococci.

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*Read before the Hennepin County Medical Society, April 5, 1912.

Two methods to abort gonorrhea have been advised.

The first is to paint or swab the fossa navicularis with some strong antiseptic in the hope of destroying all gonococci present. This method fails because it is impossible to use in the urethra a sufficient quantity of strongly concentrated antiseptic to destroy all the gonococci at one application, and if all the gonococci are not destroyed the irritation of a strongly concentrated solution simply makes a bad matter worse.

The second method is to inject some mild antiseptic into the urethra. The meatus is then closed and the solution retained a sufficient length of time for the mild solution to destroy the gonococci. This method fails because of the means employed to retain the solution in the urethra. The patient is instructed to inject a syringeful of the given solution into the urethra, and retain it by grasping the meatus between the thumb and finger. The infection takes place, and the disease begins at the outer border of the fossa navicularis. When the glans is grasped between the thumb and finger to close the meatus, the infected surfaces of the fossa navicularis are pressed closely together and thereby carefully protected from contact with the solution contained in the urethra. Under this condition the solution injected into the urethra has about the same effect that it would have had had it been thrown directly into the sewer, instead of having been sent by way of the urethra.

The urethra is a collapsed tube. The larger part of the pendulous portion collapses by the contraction of its walls in much the same manner that a rubber tube shrinks after having been dilated. The fossa navicularis, however, does not collapse by contraction, but by folding. The lateral walls lie in contact, the external meatus being a vertical slit-like opening.

By grasping the glans just back of the fossa navicularis between the thumb and the finger, and making gentle pressure on the urethra, and at the same time moderate traction on the penis, the urethra will gap open to the depth of one-fourth to three-eighths of an inch, that is, almost the entire length of the fossa navicularis. If now the meatus is turned upwards we have a cup into which can be dropped two or three drops of any antiseptic solution we choose. This solution can be retained for an indefinite period. If we first fill the urethra with an antiseptic solution, then grasp the penis and elevate the meatus in the manner just described, the gaping portion of the meatus or fossa navicularis can be filled with the solution from the urethra by simply relaxing the pressure of the finger. In this way the solution can be kept in contact with the infected surface as long as may be desired, and at the same time may be changed and replaced by a fresh solution from that contained in the urethra by simply releasing the pressure of the finger. It is needless to say that the patient should be given a towel or cotton to catch the overflow.

By this simple method I have succeeded, during the past five years, in aborting a few cases of undoubted gonorrheal infection.

TWO CASES OF SPOROTRICHOSIS

By Gustav F. Ruediger, M. D.,
Director of the State Public Health Laboratories, University of North Dakota
GRAND FORKS, N. D.
and
Oscar Smith, M. D.,
MANNING, N. D.

In a previous paper, one of us* has expressed the opinion that sporotrichosis is a fairly common disease in North Dakota, but is not being recognized by the general practitioner. Our experience during the last eight months has amply verified that statement. At the State Public Health Laboratory we have been able to grow the sporothrix from three additional cases and have obtained histories and photographs from five more cases, making a total of eight cases that have come to our notice during the last eight months. In this communication we wish to report two cases that were treated by one of us (S.), but the first of these was not diagnosed culturally. We believe, however, that the clinical history and the striking similarity between the first and second of our cases make a retrospective diagnosis of sporotrichosis justifiable. These two cases are interesting, not only because they go to show that this infection is not rare in North Dakota, but because both histories show clearly that the patients are put to a great deal of unnecessary suffering and are incapacitated for work because the attending physician does not recognize the nature of the infection and therefore does not institute the proper treatment.

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*Ruediger and Miller: Journal of the Minnesota State Medical Association and The Northwestern Lancet, 1911, vol. xxxi, p. 507.

Case 1.—Mrs. B., 43 years of age, resident of Dunn County, North Dakota. In November, 1910, the patient noticed a pimple on the back of the hand, and about five days later the hand became painful and began to swell. The swelling involved the entire hand and extended up the arm. The patient now consulted a physician who lanced the hand and put on a poultice made of sugar and soap. The following day both pain and swelling were much increased, and the doctor at this time cauterized the wound and applied a moist bichloride dressing. The following night the patient had severe pain in the arm and a most excruciating headache, and vomited many times.

About four or five days after the hand and arm started to swell there were discovered a small number of subcutaneous nodules which were now poulticed with antiphlogistine, but without effect. The arm also was painted with tincture of iodine, which produced a very marked dermatitis with innumerable blisters. The arm was greatly swollen and the skin bright red in color except over the subcutaneous nodules, where it had a distinctly purplish hue. After several weeks of this treatment, five of the nodules were lanced and again poulticed with soap and sugar.

The case now came under the observation of Dr. Smith, who found the following conditions: The hand and arm are greatly swollen and very painful. There is an ulcer on the back of the hand and five similar ulcers further up on the forearm where the nodules had been lanced. Higher up on the forearm and arm are seven subcutaneous nodules, the overlying skin here being of a purplish hue. There is another large nodule on the side of the neck. On the forearm the ulcers and subcutaneous nodules are found on both the anterior and posterior surfaces.

Five more of the nodules were lanced and again poulticed with antiphlogistine, and the sores washed morning and evening with bichloride solution. Progress was very slow indeed, but the patient finally made a complete recovery in May, 1911.

Case 2.—Mabel N., three and a half years of age, resident of Dunn County, N. D. In August, 1911, the patient sustained a cut with a butcher-knife between the first and second joints of the index-finger of the left hand. About a week later the finger became inflamed and swollen, and the cut began to suppurate. A physician was consulted who applied tincture of iodine and an antiphlogistine poultice. The swelling and inflammation extended, and three days later the finger was lanced and the treatment with tincture of iodine and poultices was continued. At the end of a week's treatment, the region of the metacarpophalangeal joint became involved and was opened with a knife. The inflammation and swelling continued to spread and about ten days later the back of the hand was lanced and the wound treated with soap and sugar poultice.

The patient now came under the observation of Dr. Smith, who found the following conditions: The index-finger and the left hand are greatly swollen and have been lanced in three different places. The edges of the wounds are bright red in color and have an angry and inflamed appearance. On the posterior surface of the forearm and arm are ten subcutaneous nodules, each of them about as large as a bean. Some of these have ruptured and are discharging a small amount of purulent material.

One of these nodules was opened under aseptic precautions, and the small amount of pus which escaped was smeared upon a blood-serum tube and mailed to the Public Health Laboratory for bacteriological examination. A pure culture of sporothrix developed in the blood-serum tube. A positive diagnosis of sporotrichosis having been established, the patient was put on internal medication with potassium iodide, and from this time on made a satisfactory recovery. Treatment with potassium iodide has given excellent results in the vast majority of reported cases, and it is therefore very important that a correct and positive diagnosis should be made early, and the patient given the proper treatment. Without this treatment the course of the disease is very protracted, and the scarring of the limb is extensive.

THE
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May 1, 1912

THE STATE ASSOCIATION MEETINGS

The Montana Association meets at Helena on May 7, 8, and 9.

The North Dakota Association meets at Valley City on May 13, 14, and 15.

The South Dakota Association meets in Mitchell on May 21, 22, and 23.

The Minnesota Association meets in Duluth on August 13, 14, and 15.

MEDICAL SOCIETY MEETINGS

A general lack of interest in medical society meetings is one of the failings of the medical profession. The cause of such failure is a debatable one, and doubtless every medical man who neglects his society has an excuse that seems to him reasonable and justifiable.

The usual excuse is an urgent case, an office hour, or a previous engagement of some sort. A cause which cannot be overlooked is the character of papers presented at the average meeting. Technical subjects, fit only for special workers, do not appeal to the average attendant. Such papers are ultra- or pseudoscientific and do not meet the needs of the general practitioner, and yet it is a fact that many general practitioners should show more interest in subjects of which they know but little. No medical man should hide himself behind the flimsy excuse that he cares nothing for laboratory methods and findings, for the day has already dawned when he needs all the aids that science can bring to him in the study of the cause and effect of disease.

True, the laboratory-worker often feels that his researches are of the greatest importance, but unless they are combined with clinical observations they do not carry the weight they deserve. On the other hand, the clinician who depends wholly on his own methods in snapshot diagnosis often fails to arrive at an approximately correct diagnosis. For this reason there should be more co-operation between the man of medicine and the expert in laboratory diagnosis. Cytological studies are of the greatest importance, and the diagnostician must learn that in the investigation of cells in fluids he will find an enormous help in explanation of many groups of symptoms. Hence papers on such subjects should be carefully analyzed.

Many medical men do not attend medical societies on account of the elementary character of the papers presented, and it is too often true that some papers are simply compilations on simple subjects upon which the writers theorize without thinking or wholly miss the mark at which they are aiming. We must remember that we were all young once, and it has not been given to many to write a profound or even an interesting treatise on a commonplace topic.

Too many subjects are hackneyed, or seem to be to some of the older members of a society, but these same subjects may appeal to a younger set who are going through the process of evolution.

The successful writer is one who gives his hearer something to think about even though the title of his discourse is a familiar one.

If a medical writer has something to present that inspires his fellow practitioner he has advanced the knowledge of his auditors, but if the paper is an indifferent one, containing many words but no ideas, the program committee of the society should ruthlessly reject the subject and the writer. There is too much of the ordinary in medicine already, but the man of ideas is always sure of a hearing.

Some men have the faculty of presenting a subject in a forceful and terse style which commands respectful attention, while others may write a good paper and attract no one. Medical meetings, like other meetings, are overloaded with superfluous stuff, delivered by men who delight in hearing themselves talk and who force their undigested impressions on a disinterested audience. This is why society meetings are often dull and uninstructive, but when the papers and discussions are short, crisp, and to the point, and are based on observation and experience there are no dull moments in the meeting.

The meetings of the four associations noted at the head of this column should be good meetings and should be very generally attended. Our Minnesota meeting, at Duluth on August 13, 14, and 15, is full of promise, and may easily excel any meeting of the Association in the past.

THE CHICAGO MEDICAL SOCIETY

The West-side Branch of the Chicago Medical Society and the Chicago Medical Society met at the La Salle Hotel on April 17, 18, and 19 to discuss mental diseases in their various phases. The program consisted of thirty-three papers and covered a wide field, covering its study from nearly every standpoint.

The contributors were recruited from many states and all were experienced men. The Chicago men courteously kept off the program in order to give the visiting men the fullest opportunities.

In spite of the excellence of the program and the uniform excellency of the papers the attendance was very poor, which is another evidence of the laxity and indifference of medical men in attending meetings wherein much information was centered.

Perhaps the program was not sufficiently advertised, or perhaps the doctors thought it too profound. As a matter of fact, the subjects were all of interest and should have been listened to by a large number of men, but something was wrong, and in the opinion of the writer, who went to Chicago to attend the meeting, the fault can be laid only to those who did not attend.

If the meeting had been in a smaller city the attendance would have been larger. It is to be hoped that the papers will be published in book form and widely distributed. If they are scattered in various journals many of them will be lost to the general reader.

ADVANCES IN NEUROLOGY

The past few years have shown the rapid progress made in the discoveries of new and changed fields in the nervous system. We have been taught that certain areas in the brain preside over definite functions. This data is more or less reliable in the motor side of the brain and spinal cord. It does not apply, however, to the sensory sphere. The carriers of sensory impulses have been rather difficult to follow, particularly after the fibers have entered the cord.

In the posterior columns and around the posterior horns of gray matter it is quite likely that sensory fibers predominate and convey various forms of sensation, but when we approach the brain-stem and the intricacies of communication between the deep structures of the pons medulla and the cerebellum there is much confusion as to actual localization. Higher up, in the region of the tegmentum, the corpora quadrigemina, the optic thalami, and the posterior limb of the internal capsule, the sensory pathway constantly reveals new offshoots and new communicating paths. It has been supposed that the posterior limb of the capsule was made up of sensory fibers and special sense-fibers exclusively, but recent studies prove the uncertainty of the early teachers.

In cases of persistent hemianesthesia the diseased or degenerated fibers have been found to lie out of the capsule, in some instances so far out as to alter our former views entirely.

In the so-called motor area, composed mainly of the ascending frontal and the ascending parietal convolutions, the locality is recognized as a sensorimotor region. We may even modify this view in the light of recent events and call the ascending frontal convolution a motor field and the ascending parietal convolution a sensory field. It has also been shown that in the vicinity of the lenticulate portion of the corpus striatum sensory fibers predominate. This ganglion has long been thought to be associated with sensation in some way, but the fact was not proven until within a short time.

During the recent epidemics of essential paralysis, the high types of poliomyelitis and the still higher types of polioencephalitis, have done a great deal toward a better understanding of certain tracts.

It remains now to continue the investigation of sensation and its course through the brain into the terminal points in the ganglia and the cortex. It is possible, however, to arrive at a fairly accurate diagnosis in the gross diseases in the brain. Dr. Mills, in a recent report of a case, called attention to a syndrome which persisted four years. There was ataxia of the left arm and leg without loss of power, and sensation was present in all its forms in the left side, but was lost to pain, extreme heat, and extreme cold on the entire right side of the body. The lesion was in the left dentate nucleus and the cerebellum above the nucleus and in the superior cerebellar peduncle, all supplied by the left superior cerebellar artery. Secondary degeneration extended up a definite path to the right side of the pons into the red nucleus of the tegmentum.

This case demonstrates the importance of studying the blood-vessels and their distribution in the brain, the parts of the pathways supplied by large and small arteries.

DOES MINNEAPOLIS WANT THE AMERICAN MEDICAL ASSOCIATION IN 1913?

In all probability the American Medical Association will be invited to hold the next meeting in Minneapolis.

A campaign of inquiry was begun two years ago, and the matter has been under discussion by medical men in this city for some time.

Do we want it, and can we afford it? At Los Angeles last year the attendance outside of the state of California was very small, about 1,100. The cause of the small attendance was the extreme distance from prominent centers, but Minneapolis is easily accessible from all points in the United States, and we ought to be able to draw a crowd, not as large as in Atlantic City, but certainly not less than three thousand. Fortunately, our hotel facilities are now ample, and any number of people can be cared for if we call on St. Paul with its fine new hotel to help us out.

We have an auditorium for the large meetings and a sufficient number of smaller halls for section meetings.

The scenic attractions about Minneapolis are well known, and we can assure the visitors an opportunity to enjoy themselves at clubs, golf courses, and boulevards to their hearts' content.

We must decide at once what our course shall be. The meeting means a good deal of work, but we have the workers if we are provided with the means. We cannot hope to approach or outdo Los Angeles and Pasadena, but we can do our best.

The Journal-Lancet will be glad to receive letters or postals expressing individual views on the subject.

DRASTIC HEALTH LEGISLATION

The tremendous and wholly unnecessary loss from disease and premature death suffered in this country can be stopped only by *drastic* legislation, because, in this country, individual liberty has been placed above community interests. New Jersey has taken the first step in the adoption of laws of this character. We call New Jersey's new law "drastic." It is so only because such law is demanded by the unchecked folly of our people, carried to a point where no other legislation will arrest attention and command obedience. We publish the New Jersey law in another column.

MISCELLANY

NEW JERSEY TUBERCULOSIS LEGISLATION THE MOST ADVANCED EVER PASSED

What is designated by The National Association for the Study and Prevention of Tuberculosis as the most advanced legislation in the campaign against tuberculosis that has been enacted by any state in the United States, if not by any country in the world, is found in a bill just passed by the New Jersey Legislature and signed by Governor Wilson.

The new law provides that tuberculosis patients who refuse to obey the regulations laid down by the State Board of Health concerning the prevention of their disease, and thus become a menace to the health of those with whom they associate, shall be compulsorily segregated by order of the courts, in institutions provided for this purpose. If such a patient refuses to obey the rules and regulations of the institution in which he is placed, he may "be isolated or separated from other persons and restrained from leaving the institution." The law further provides that all counties in the State of New Jersey shall, within six months from April 1st, make provision in special institutions for the care of all persons having tuberculosis in these counties. The state treasury will subsidize each county to the extent of $3.00 a week for each person maintained in these institutions except those who are able to pay for the cost of maintenance.

Commenting upon this legislation, The National Association for the Study and Prevention of Tuberculosis says that this is the most advanced legislation of its kind that has ever been enacted in this country by any state legislature. The only other state which provides for compulsory segregation of dangerous cases of tuberculosis, is Maryland. The only city in the United States which has adopted a special ordinance providing for compulsory removal of dangerous tuberculosis cases, is San Francisco. A few other cities, such as New York, exercise this power under certain provisions of their sanitary codes, but no other city has any special ordinance on the subject.

The National Association declares that a consumptive who exercises sufficient precautions in the disposal of his sputum need not be a menace to anyone. The association goes further, however, in saying that when a consumptive refuses to adopt the proper precautions necessary to prevent the spread of his disease, he should be forcibly isolated and segregated in a special hospital provided for that purpose.

REPORTS OF SOCIETIES

MINNESOTA ACADEMY OF MEDICINE

The regular meeting of the Academy was held at the Town and Country Club on Wednesday, April 3d.

Dr. Geo. E. Senkler exhibited the specimen and reported the case of an enlarged thymus gland which had caused the death of a child nearly one year old, in the family of one of our members.

The child was apparently well until four days ago, when it began to have difficulty in breathing, apparently croupy in character. Dyspnea developed rapidly. There was entire absence of respiration in the left lung, and it was seemingly collapsed. There were no moist sounds, and the percussion note was hyper-resonant. There was complete loss of voice, and the cyanosis became very pronounced. The temperature was 101° at first and rose to 107° before death.

Dr. Louis B. Wilson, of Rochester, in commenting on the case, stated that the normal weight of the thymus gland in a child at this age is about 15 grams, and he estimated this one to weigh about 40 grams. He stated that the cases at St. Mary's Hospital, at Rochester, had seemed to cause trouble by their pressure upon the nerves rather than upon the trachea.

Dr. Head was of the opinion that the dyspnea in these cases is due to mechanical obstruction, and in some cases the pressure has almost cut through the trachea. He cited instances in four or five cases that have been saved by removal of the thymus gland, and in one case the child was but six months old.

Dr. A. E. Benjamin reported a case in which he had performed a hysterectomy for cancer of the cervix, had removed the appendix, and had found and removed three gall-stones in a woman 48 years of age all in one operation.

Dr. Louis B. Wilson, of Rochester, read a paper entitled "Graduate Instructions in Medicine." The paper was discussed by Drs. Moore and Stewart.

Dr. J. Clark Stewart read a paper entitled "The Treatment of Tuberculous Lymph-Nodes." The paper was discussed by Drs. Moore, Benjamin, Mann and Dunsmoor.

A. W. Dunning, M. D., Secretary.

HENNEPIN COUNTY SOCIETY

The Society met on April 4th, with President Bradley in the chair and 75 members present.

Dr. G. D. Haggard was elected the Society's representative to the American Association of Medical Milk Commissions, now in session at Louisville, Ky., his expenses being paid by the Society.

The Committee on Necrology offered the following resolution, and the same was passed:

Whereas, Dr. Robert R. Rome, for many years a member of this Society, has been called to rest from his labors; therefore

Be it resolved, that The Hennepin County Medical Society in stated meeting assembled, express its appreciation of the character and life work of Dr. Rome as a physician, a teacher, and a citizen of upright and honorable character; and,

Be it further resolved, that the Society hereby tender heartfelt sympathy to the family of Dr. Rome in their bereavement; and,

Be it resolved, that a copy of these resolutions be sent to Mrs. Rome and family, and be recorded in the transactions of the Society and published in The Journal-Lancet.

The committee appointed to investigate the dispensary of the "Charitable Aid Society," operating in the Kasota Block, reported, through Dr. Chowing, its chairman, that no satisfactory information could be obtained from those in charge, and it was recommended that the dispensary be not recognized as a charitable institution. The motion was carried.

The following were elected to membership: Drs. C. R. Drake, John Fox, and H. E. Canfield.

Papers were read as follows: "The Roentgen Diagnosis of Chest Diseases," by Dr. F. S. Bissell; "The Abortive Treatment of Gonorrheal Epididymitis," by Dr. Oscar Owre; and "The Cancer Problem," by Dr. J. Clark Stewart.

Dr. Corbett presented a new device for intratracheal insufflation and etherization.

Dr. Wilcox gave a report of a case of hypertrophic stenosis of the pylorus in a female child of seventeen months. The child was rapidly losing weight and apparently starving to death. Operation gave complete relief, and the child is rapidly recovering.

E. J. Huennekens, M. D., Secretary.

STEARNS-BENTON COUNTY SOCIETY

The Society held its annual meeting in St. Cloud on April 18th, with eighteen members present. Dr. H. L. Lamb delivered the president's address on the subject of "Chronic Gastritis." Dr. S. Marx White, of Minneapolis, presented a paper on "The Etiology and Diagnosis of Arteriosclerosis;" and Dr. Adrian Kirghis read a paper on "Methylene-blue in Surgical Cases."

The papers were thoroughly and interestingly discussed.

Officers were elected as follows: President, Dr. J. H. Beatty; vice-president, Dr. C. F. Brigham; secretary-treasurer, Dr. J. C. Boehm; delegate, W. L. Beebe; alternate, Dr. H. L. Lamb.

The St. Cloud and Sauk Rapids physicians entertained the members and a number of guests at a supper at the Grand Central Hotel.

J. C. Boehm, M. D., Secretary.

NEWS ITEMS

Dr. G. W. Gray has moved from Carlos to Garfield.

Dr. O. E. Nelson, a Chicago graduate, has located at Truman.

Dr. H. L. Saylor, of Cogswell, N. D., was married last month to Miss Clare Lyken, also of Cogswell.

Dr. J. A. Prim has moved from Comfrey to Minneapolis and has offices at 1216 E. Twenty-first street.

The annual meeting of the Montana State Medical Association will be held in Helena on May 8th and 9th.

Dr. Adolph L. Kyllo, of Grantsburg, Wis., was married last month to Miss Olivia P. Pfeilsticker, of Wabasha, Minn.

At the last meeting of the Rice County Society Drs. C. Eugene Riggs and J. T. Christensen, of St. Paul, read papers.

Dr. L. C. Ingham, of Zumbro Falls, has sold his practice to Dr. Rankin, formerly of South Haven, and will retire.

Dr. J. A. Duncan, of Upham, N. D., has returned from New York where he spent the winter in post-graduate work.

Dr. H. A. Owenson, of Deering, N. D., has sold his practice to Dr. Farrage. Dr. Owenson will move to Joplin, Wis.

Dr. Hugh Slocumb, who has been associated with his brother, Dr. J. S. Slocumb, of Plainview, for a year or more, will move to Elgin.

Dr. John Butler, of Minneapolis, has returned from Vienna, where he has been for over a year engaged in the study of his specialty, skin diseases.

Dr. W. E. Minahan, of Fond du Lac, Wis., lost his life on the Titanic, and he was, we believe, the only physician, except the ship's, on board.

Dr. F. W. Dimmitt has announced his intention to move to Yoakum, Texas, a city of 7,000 population. Dr. Dimmitt has practiced in Red Wing nearly twenty years.

Dr. Thomas McDavitt, of St. Paul, gave an eye and ear clinic, and Dr. R. O. Beard, of Minneapolis, read a paper, at the meeting of the Upper Mississippi Society last month.

Dr. A. S. Hamilton, of Minneapolis, has gone to Europe for special work in nervous diseases. He will be absent about six months, and will spend his time in London and elsewhere.

Dr. Herman Westphal, of Butte, Mont., died last month at the age of 43. Dr. Westphal had practiced in Butte about ten years. He was a fine chemist and enjoyed laboratory work.

Dr. L. H. Fligman, of Helena, Montana, has gone to Berne and Vienna for six months. He will devote his time to study of nervous diseases and to diseases of the heart, lungs, and kidneys.

Dr. Martha G. Ripley, of Minneapolis, died on April 18th, at the age of 69. Dr. Ripley had practiced in Minneapolis about thirty years, and for twenty-five years she gave most of her energies to Maternity Hospital.

The Tri-County Society of North Dakota held its annual meeting at Carrington, N. D., on April 10th. Officers were elected as follows: President, Dr. W. H. Moore, Sykeston; vice-president, Dr. A. J. Clay, Bowden; secretary-treasurer, Dr. O. W. McClusky, Carrington.

The Lewis and Clark Society of Montana held its annual meeting last month at Helena. The following officers were elected: President, Dr. Rudolph Horsky; vice-president, Dr. T. D. Tuttle; secretary-treasurer, Dr. B. V. McCabe; delegate, Dr. B. C. Brooke; alternate, Dr. B. V. McCabe.

The Sixth District Society of North Dakota met last month at Mandan. Papers were read by Dr. J. C. Staley on "Acute Articular Rheumatism"; by Dr. W. B. Foster on "Anesthetics"; and by Dr. H. O. Altnow on "Sacro-iliac Strain." A general discussion followed each paper. The May meeting will be held at Bismarck.

Dr. H. L. Ulrich, of Minneapolis, read a paper on "Bacterial Vaccines" before the Goodhue County Society last month at Red Wing. A committee was appointed to ascertain how many persons died in that county from consumption within the past decade, and how many now have the disease.

The annual report of St. Mary's Hospital of Rochester for 1911, shows that 7,173 patients were operated on by the staff during the year. The death-rate from abdominal operations was 2.1 per cent, and from intraperitoneal operations it was 1.7 per cent, while from non-malignant intraperitoneal operations it was 1.2 per cent.

The Northwestern District Society of North Dakota held its annual meeting at Minot, N. D., on April 16th. The business session was held in the Commercial Club rooms in the afternoon. In the evening the members and their wives attended the theater, and then went to the residence of Dr. Andrew Carr where they had music and dancing and luncheon.

Dr. O. F. Schussler, who spent four months last fall in the orthopedic clinics of the Mass. General Hospital, is now in Europe to spend a year in orthopedic work. He is to spend six months with Dr. Lorenz in Vienna, and the remainder of the time in Munich, Berlin, and Liverpool. Of the one hundred American physicians in Vienna, he alone is doing orthopedic work exclusively.

The following physicians were granted licenses to practice in Montana last month, having passed the State Board examination: Wilmer E. Toney, of Missoula; W. L. Macdonald, of Great Falls; L. C. Deitrich, of Deer Lodge; Melville C. Danskin, of Glendive; Rex R. Frizzel, of Chicago; A. E. Ripperton, of Joplin; Arthur A. Husser, of Berthold, N. D.; T. A. Mathews, of St. Ignatius; Bert E. Hempstead, of Brainerd, Minn.; A. Edward Bostrom, of De Smet, S. D.; Curtis W. Wilder, of Benchland; Thomas J. B. Shanley, of Butte; Edward G. Ahrens, of Alberton; Edward M. Gans, of Dickinson, N. D.; George M. Crabb, of Deer Lodge; Philip G. Cole, of Helena; Harmon T. Rhoads, of Choteau; William E. Young, of Three Forks; Louis H. Fales, of Stevensville; Joseph C. Denney, of Clyde Park; Albert A. Pastene, of Chester; Carl D. Wells, of Billings; O. S. Haverfield, of Musselshell; Charles Houtz, of Fort Benton; Charles Scofield, of Libby.

GOOD OPENING FOR A PHYSICIAN

There is a good opening in the south part of Minneapolis for a physician. One-half of an office with a long-established dentist is offered for rent cheap at the corner of Lake St. and Bloomington Ave., a car line intersection. Office is modern in all respects. Telephone. Tri-State—Calhoun 2984, or 3852.

PARTNERSHIP IN TWIN CITIES WANTED

A Rush graduate of a dozen years' experience in private and hospital practice, formerly connected with an Illinois training-school as professor of obstetrics, and at one time associated in practice with an eminent Rush professor, and specially skilled in case-taking desires a partnership with a Twin City physician of large practice. Will pay a proper price for the partnership. Address P. M., care of this office.

FOR SALE

The instruments, office fixtures, and furniture of the late Dr. George M. Coon of St. Paul. This offers an exceptional opportunity for any one wishing to take up the specialty of Skin and Genito-urinary work, as Dr. Coon had a wide acquaintance and a large following. Address inquiries to Mrs. Edith N. Coon, 916 Hague ave., St. Paul, Minn.

PRACTICE FOR SALE

My practice in the finest location in east central South Dakota is offered for sale. For full information address H. H., care of this office.

SUBSTITUTE POSITION WANTED

An experienced physician, graduate of a high-grade medical school and 32 years of age, would like to substitute and take care of some doctor's practice while away until September. Best of references. Please state all particulars in first letter. Address R. P., care of this office.

PRACTICE FOR SALE

The practice of the late Doctor Robert Rome, 700 Donaldson Bldg., Minneapolis, is offered for sale, with or without furniture and equipment. Dr. Rome was in general practice in Minneapolis for 17 years and in surgery 4 years. For particulars, address J. M. R., 706 Donaldson Bldg., or telephone Harriet 52, Minneapolis.

Minnesota State Medical Association

DISTRICT AND COUNTY ROSTER

APRIL, 1912

FIRST DISTRICT

COUNCILOR, C. E. DAMPIER......................Crookston

Clay-Becker County Medical Society

Regular meetings, last Monday in January, April, July, and October

Annual meeting in January

PRESIDENT
Carman, J. E..............Detroit
SECRETARY
Barton, E. R................Frazee
Aborn, W. H..............Dilworth
Adkins, C. M..............Ogema
Awty, W. J. ....Moorhead
Bloom, C. J...................Mora
Breitenbach, O. C.........Frazee
Carman, J. B..............Detroit
Darrow, Daniel C.........Moorhead
Estrem, C. O...............Detroit
Frasier, G. W........Minneapolis
Hagen, Ole J.............Moorhead
Heimark, O. E............Duluth
Hoit, Edward E............Detroit
Humphrey, E. W........Moorhead
Kaess, A. J.........Fargo, N. D.
Kierland, P. E.........Mahnomen
Kirmse, G. W..............Frazee
Lowe, L. M...............Glyndon
Meighen, J. W................Ulen
Ogden, Emma K............Detroit
Richards, Polk........White Earth
Simison, C. W..............Hawley
Smith, M. B. ....Lake Park
Thornby, H. J........Barnesville
Verne, V. E.............Moorhead
Weeks, L. C................Detroit

Park Region District and County Medical Society

Wilkin, Otter Tail, Douglas, and Grant Counties

Regular meetings, second Wednesday in January, April, July, and October

Annual meeting in January

PRESIDENT
Haskell, A. D..........Alexandria
SECRETARY
Randall, A. M................Ashby
Armstrong, L. W.....Breckenridge
Baker, A. C..........Fergus Falls
Berthold, J. L..............Perham
Burnap, W. L. ......Pelican Rapids
Coleman, Fred B.............Carlos
Davis, L. A..................Dalton
Esser, John ....Perham
Freeborn, J. A.........Fergus Falls
Gilkinson, A. J. ....Osakis
Gosslee, A. F..........Deer Creek
Haugan, O. M. ....Fergus Falls
Haugen, G. T..........Battle Lake
Kittelson, T. N........Fergus Falls
Leibold, H. H.....Parker's Prairie
Lester, C. A..........Alexandria
Lyng, John A...........Alexandria
Meckstroth, C. W...........Brandon
Perry, Ralph St. J.Parker's Prairie
Powers, F. W...............Barrett
Serkland, J. C.............Rothsay
Sherping, O. Th........Fergus Falls
Vigen, J. G............Fergus Falls
Vinje, Syver ....Henning

Red River Valley Medical Society

Polk, Marshall, Kittson, Roseau, and Norman Counties

Regular meetings, January, April, July, and October

Annual meeting in January

PRESIDENT
Melby, O. F....Thief River Falls
SECRETARY
Norman, J. F............Crookston
Arneson, Thomas ..Twin Valley
Bowers, J. T................Gully
Bratrud, Theodore ....Warren
Briggs, F. W............Hendrum
Clair, J. B...................Oslo
Dahlquist, G. W.......Lancaster
Dampier, C. E..........Crookston
Dryden, F. M...........Crookston
Dunlop, A. H........ Crookston
Gambell, F. H....Thief River Falls
Hamel, C. E.............McIntosh
Heimark, J. H...........Hawley
Hendrickson, J. F.........Fertile
Hieber, H. G...Thief River Falls
Hodgson, H. H.........Crookston
Holte, H. ....Crookston
Hollands, Wm...............Fisher
Johnson, Geo. L.......Newfolden
Kjelland, J. S............Crookston
Lemieux Israel...Red Lake Falls
Morley, G. A..........Crookston
Muir, J. B.................Hallock
Nelson, H. E............Crookston
Ohnstad, J...............McIntosh
Olson, O. H ....Erskine
Risjord, J. N.............Fertile
Smith, H. W.... .....Crookston
Stuhr, H. C.................Argyle
Swanson, Cephas ....St. Hilaire
Swedenburg, A. W...............
................Thief River Falls
Watson, N. M......Red Lake Falls
Wattam, G. S..............Warren
Wilkinson, J. C. ....Red Lake Falls

West Central Minnesota Medical Society

Pope, Stevens, Traverse, and Big Stone Counties

Regular meetings, second Wednesday in January, April, July, and October

Annual meeting in January

PRESIDENT
Randall, B. M. ....Graceville
SECRETARY
Hulburd, H. L..............Morris
Arnold, S. E..............Clinton
Bolsta, Charles ....Ortonville
Caine, C. E... ....Morris
Cavanor, Frank T......Wheaton
Christenson, C. R. ....Starbuck
Eberlin, E. A. ....Glenwood
Elsey, J. R..............Glenwood
Ewing, C. F...............Wheaton
Fitzgerald, E. T..........Morris
Fjelstad, C. A...........Glenwood
Fleming, A. S............Wheaton
Gibbon, L. L................Lowry
Karn, B. R..............Ortonville
Karn, J.................Ortonville
Leland, J. T...............Herman
Leuty, Amos ....Morris
Linde, Herman ....Cyrus
Oliver, C. I.............Graceville
Ransom, M. L............Hancock
Weir, J. D...............Beardsley
Whittemore, J. G. ....Donnelly

SECOND DISTRICT

COUNCILOR, J. G. MILLSPAUGH................Little Falls

Aitkin County Medical Society

Regular meetings, first Monday in each month

Annual meeting in October

PRESIDENT

Graves, Carlton ....Aitkin

SECRETARY

Ratcliffe, J. J................Aitkin

Catlin, T. J...............Palisade
Kelly, B. W..................Aitkin
Stewart, Alex..........Hill City

Upper Mississippi Medical Society

Beltrami, Cass, Crow Wing, Hubbard, Morrison, Todd, Wadena, and Itasca Counties

Regular meetings, first Tuesday in January, April, July, and October

Annual meeting in January

PRESIDENT

Coulter, Charles F..........Wadena

SECRETARY

Lowthian, G. H.............Akeley

Allen, F. H...............Staples
Batcheller, Oliver T.......Brainerd
Beardsley, W. R..........Crosby
Beise, R. A...............Brainerd
Campbell, R. W........Swanville
Christie, George R....Long Prairie
Corrigan, J. E.............Spooner
Courtney, Walter ....Brainerd
Desmond, M. A.............Akeley
Fortier, E. L...........Little Falls
Gilmore, R. T.............Bemidji
Hall, Elmer E..........Little Falls
Hart, A. B...............Pequot
Hemstead, Bert E........Brainerd
Holdridge, G. A....Browersville
Holst, C. F. ....Little Falls
Holst, J. B. ....Little Falls
Ide, A. W................Brainerd
Johnson, E. W...........Bemidji
Johnson, Oscar V...........Sebeka
Kenyon, Paul E...........Wadena
Knickerbocker, Frank H. ..Staples
Koch, J. C...............Blackduck
Marcum, E. H.............Bemidji
Miller, W. A.......New York Mills
Millspaugh, J. G........Little Falls
Monahan, R. H.........Intl. Falls
Morell, W. N.............Verndale
Nicholson, Joseph ....Brainerd
Ohlinger, L. B..The Sanatorium,
Cass County
Parrott, B. W........Long Prairie
Reid, William ....Deer Wood
Reimstad, C. S...........Brainerd
Roberts, L. M.........Little Falls
Sanborn, C. R..............Bemidji
Sewall, G. M...............Cuyuna
Smith, E. H...............Bemidji
Sykora, F. J..............Brainerd
Tanner, A. C........Federal Dam
Thabes, J. A..............Brainerd
Van Valkenberg, B. F., Long Prairie
Wilcox, F. L................Walker
Will, W. W..................Bertha

THIRD DISTRICT

COUNCILOR, J. L. ROTHROCK......................St. Paul

Ramsey County Medical Society

Regular meetings, last Monday of each month except July and August

Annual meeting in January

PRESIDENT

Stumm, T. W............St. Paul

SECRETARY

Smith, C. E., Jr...........St. Paul

Abbott, E. J...............St. Paul
Alexander, F. H.........St. Paul
Allen, Mason ....St. Paul
Ancker, A. B.............St. Paul
Armstrong, J. M..........St. Paul
Arzt, C. P...............St. Paul
Bacon, Knox..............St. Paul
Bacon, L. C..............St. Paul
Balcome, F. E............St. Paul
Ball, C. R................St. Paul
Barringer, Paul E.........St. Paul
Barsness, Nellie...........St. Paul
Beadie, W. D.............St. Paul
Beaudoux, H. A..........St. Paul
Beckley, F. L. ....St. Paul
Benepe, L. M.............St. Paul
Bennion, P. H. ....St. Paul
Bettingen, J. W..........St. Paul
Bock, R. A...............St. Paul
Boeckmann, Eduard ....St. Paul
Boeckmann, Egil ....St. Paul
Bohland, E. H............St. Paul
Bole, R. S...............St. Paul
Boxell, C. E..............St. Paul
Bray, E. R................St. Paul
Brimhall, J. B...........St. Paul
Bristol, L. D.............St. Paul
Brooks, D. F.............St. Paul
Brown, E. I...............St. Paul
Brown, J. C..............St. Paul
Brown, S. E..............St. Paul
Buckley, E. W............St. Paul
Burch, F. E...............St. Paul
Burns, R. M..............St. Paul
Caldwell, D. K............St. Paul
Cameron, J. A............St. Paul
Campbell, A. A....South St. Paul
Campbell, E. P...........St. Paul
Campbell, J. E...........St. Paul
Cannon, Harry ....St. Paul
Carman, Chas. L..........St. Paul
Cavanaugh, J. O..........St. Paul
Chamberlin, J. W.........St. Paul
Charpentier, A. A........St. Paul
Christianson, A..........St. Paul
Christison, J. T.........St. Paul
Colvin, A. R..............St. Paul
Comstock, A. E..........St. Paul
Cook, Paul B.............St. Paul
Cuff, W. S................St. Paul
Darling, J. B..............St. Paul
Daugherty, L. E..........St. Paul
Davis, Herbert ....St. Paul
Davis, William...........St. Paul
Dennis, W. A............St. Paul
Denny, C. F..............St. Paul
Dewar, John E..........St. Paul
Dickson, T. H., Jr........St. Paul
Dittman, Geo. C..........St. Paul
Dodge, W. M...........Farmington
Dohm, A. J...............St. Paul
Dohm, C. L..............St. Paul
Dunning, A. W...........St. Paul
Earl, George A...........St. Paul
Earl, R. O................St. Paul
Eshelby, E. C...........St. Paul
Ferguson, J. C...........St. Paul
Flagg, S. D...............St. Paul
Fosness, E. G...........St. Paul
Foster, Burnside ....St. Paul
Freeman, Charles D.....St. Paul
Fullerton, W. S...........St. Paul
Gauger, E. C.............St. Paul
Geer, E. F...............St. Paul
Ghent, M. M..............St. Paul
Gilfillan, J. S.............St. Paul
Gillette, A. J..............St. Paul
Goltz, E. V...............St. Paul
Gothe, L. W.............St. Paul
Gravelle, J. M. A........St. Paul
Greene, Charles L.........St. Paul
Hall, A. R..................St. Paul
Hammes, E. M...........St. Paul
Hammond, J. F...........St. Paul
Harding, J. C..............St. Paul
Hawkins, V. J.............St. Paul
Heath, A. C...............St. Paul
Henderson, A.Powell River, B. C.
Hensel, Charles N........St. Paul
Hesselgrave, S. S.........St. Paul
Hilger, D. D...............St. Paul
Hoff, Alfred ....St. Paul
Hoff, Peder A.............St. Paul
Holcomb, O. W...........St. Paul
Holl, P. M...........Minneapolis
Hopkins, Mary P......White Bear
Hubert, R. I...............St. Paul
Ingerson, Carl A.........St. Paul
Johnson, Asa M...........St. Paul
Johnson, H. C.............St. Paul
Johnson, T. H............St. Paul
Jones, D. C...............St. Paul
Jones, E. M...............St. Paul
Kannary, E. L............St. Paul
Kelly, John V............St. Paul
Kelly, W. D...............St. Paul
Kistler, A. S...............St. Paul
Lalonde, Edmond ....St. Paul
Lande, Wm. B...........St. Paul
Lankester, Howard ....St. Paul
Larsen, C. L..............St. Paul
Larson, M. L............St. Paul
Leavitt, Frederick E......St. Paul
Leitch, Arch. ....St. Paul
Lerche, Wm...............St. Paul
Lewis, J. B...............St. Paul
Lewis, W. W.............St. Paul
Little, W. J. ....St. Paul
Lufkin, H. M..............St. Paul
Lundholm, E. M...........St. Paul
McClanahan, E. M....White Bear
McCloud, C. N.............St. P
McCord, E. W.............St. Paul
McDavitt, Thos............St. Paul

McDowell, J. H..........St. Paul
McKeon, Owen ....St. Paul
McLaren, Jennette M......St. Paul
MacLaren, A...............St. Paul
Markoe, J. C...............St. Paul
Maschger, A. P...........St. Paul
Meade, Charles J..........St. Paul
Meyerding, E. A.........St. Paul
Miller, A. W.............St. Paul
Miller, C. T................St. Paul
Mitchell, Frederick ....St. Paul
Mortensen, N. G...........St. Paul
Moynihan, T. J..........St. Paul
Murphy, E. F............St. Paul
Nelson, J. C................St. Paul
Nelson, L. A.............St. Paul
Nichols, A. E............St. Paul
Nippert, H. T..............St. Paul
Norton, H. G..............St. Paul
O'Brien, H. J..............St. Paul
O'Connor, J. V...........St. Paul
O'Malley, W. P............St. Paul
Ogden, B. H..............St. Paul
Ohage, Justus..............St. Paul
Ohage, Justus, Jr..........St. Paul
Olander, J. E..............St. Paul
Olson, F. A...............St. Paul
Ostergren, E. W...........St. Paul
Perry, C. G...............St. Paul
Peterson, V. N............St. Paul
Pine, A. A..................St. Paul
Plankers, A. F..........St. Paul
Platt, J. J.................St. Paul
Plondke, F. J..............St. Paul
Pool, Daniel ....St. Paul
Quinn, J. A................St. Paul
Ramaley, L. ....St. Paul
Ramsey, W. R.............St. Paul
Richards, E. T. F.......St. Paul
Riggs, C. E................St. Paul
Ritchie, H. P.............St. Paul
Ritchie, Parks ....St. Paul
Robinson, L. S. B.........St. Paul
Rogers, F. D.............St. Paul
Rogers, J. T................St. Paul
Rothrock, J. L.............St. Paul
Rothschild, H. J...........St. Paul
Roy, Philemon ....St. Paul
Rutherford, W. C........St. Paul
Savage, F. J...............St. Paul
Schoch, R. B. J............St. Paul
Schuldt, F. C. ....St. Paul
Schwyzer, Arnold ....St. Paul
Senkler, Geo. E............St. Paul
Sherper, M. S............St. Paul
Shimonek, Anton ....St. Paul
Skinner, H. O.............St. Paul
Sneve, Haldor ....St. Paul
Sohlberg, O. ....St. Paul
Sterner, E. G. ....St. Paul
Stierle, A., Jr............St. Paul
Stolpestad, H. L.........St. Paul
Sweeney, Arthur ....St. Paul
Taylor, H. L................St. Paul
Teisberg, C. B............St. Paul
Van Slyke, Charles A....St. Paul
Walsh, E. F................St. Paul
Warner, E. F............St. Paul
Welch, M. C..............St. Paul
Wheeler, E. C...........St. Paul
Whitacre, J. C............St. Paul
Whitcomb, E. H..........St. Paul
White, J. S..................St. Paul
Whitney, A. W..........St. Paul
Williams, C..................St. Paul
Winnick, J. B.............St. Paul
Zaun, J. J..................St. Paul

Washington County Medical Society

Regular meetings, second Tuesday in the odd-numbered months

Annual meeting in January

PRESIDENT
Kalinoff, D...............Stillwater
SECRETARY
Wells, E. E............Stillwater

Boleyn, E. S.............Stillwater
Burfiend, G. H. ....Afton
Clark, T. C. ....Stillwater
Freligh, E. O'B..........Stillwater
Furber, W. W.......Cottage Grove
Haines, J. H.............Stillwater
Humphrey, W. R.........Stillwater
Landeen, F. G. ....Stillwater
Merrill, B. J...............Stillwater
Steen, A. H.........Cottage Grove
Stevens, F. A............Lake Elmo
Withrow, M. E..International Falls

Chisago-Pine County Medical Society

Regular meetings, second Tuesday in January, April, July, and October

Annual meeting in October

PRESIDENT
Zeien, Thos...........North Branch
SECRETARY
Anderson, C. A..........Rush City
Dredge, H. P............Sandstone

Ehmke, W. C.........Willow River
Froehlich, H. W...........Hibbing
Gray, C. E...............Rush City
Gunz, A. N............Centre City
Lindberg, A. C.......North Branch
McEachern, W. A......Sandstone
Murdock, H. G.......Taylor's Falls
Tilton, A. J...................Harris
Werner, O. S..........Lindstrom
Wiseman, R. L..........Pine City

Central Minnesota District Medical Society

Mille Lacs, Isanti, Sherburne, and Kanabec Counties
Regular meetings, second Tuesday in January, April, July, and October
Annual meeting in January

PRESIDENT
Olsen, S. H..................Milaca
SECRETARY
Parsons, George E......Elk River

Cooney, H. C...........Princeton
Garand, J. H................Dayton
Nelson, M. S...................Mora
Roadman, Ira M...........Onamia
Schons, Edward .....Zimmerman
Sterner, O. W........Cambridge
Swennes, O. S............Wahkon
Swenson, Charles ....Braham
Vrooman, F. E..........St. Francis

St. Louis County Medical Society

St. Louis, Cook, Lake, Itasca, and Carlton Counties
Regular meetings, second Thursday of each month
Annual meeting in December

PRESIDENT
McCuen, J. A...............Duluth
SECRETARY
Schulze, Albert G...........Duluth

Abbott, Wm. P..............Duluth
Adams, B. S.................Hibbing
Anderson, James C.........Duluth
Anderson, L. N.............Duluth
Ayers, G. T.......................Ely
Barclay, A..................Cloquet
Barney, L. A...............Duluth
Boyer, S. H.................Duluth
Braden, A. J................Duluth
Bray, C. W................Biwabik
Brooks, G. F............Stevenson
Brown, Harry ....Duluth
Brunelle, A. M..........Cloquet
Budd, J. D...........Two Harbors
Bullen, F. W..............Hibbing
Caldwell, James P........Coleraine
Carstens, C. F..........Keewatin
Chapman, T. L..............Duluth
Cheney, E. L................Duluth
Clark, C. H...................Duluth
Collins, Arthur N.........Duluth
Collins, Homer C...........Duluth
Conkey, C. D. ....Duluth
Coventry, W. A............Duluth
Crowe, J. H...............Virginia
Daugherty, E. B.......Pine City
Davis, H. S..................Duluth
Dolan, W. G..............Cloquet
Drenning, F. C.............Duluth
Dunlop, Harry ....Duluth
Ekblad, J. W...............Duluth
Eklund, J. J................Duluth
Fahey, E. W................Duluth
Farmer, J. C...........McKinley
Fleming, James ....Cloquet
Gillespie, N. H.............Duluth
Giroux, A. A................Duluth
Graham, David ....Duluth
Graham, R..................Duluth
Grawn, F. A. ....Duluth
Greeley, L. Q................Duluth
Haney, C. L................Duluth
Harwood, W. E............Eveleth
Havens, J. G. W...........Cloquet
Hewson, Wilfred J.....Nashwauk
Higgs, W. W............Eveleth
Hirschfield, M. S...........Duluth
Hovde, Hans N..............Duluth
Jensen, T. J.........West Duluth
Jern, J. H...........Chicago, Ill.
Judson, W. E.......West Duluth
Kean, N. D.............Coleraine
Keyes, C. R.................Duluth
Knauff, M. K........Two Harbors
Koller, Herman M........Duluth
Kraft, Peter ....Duluth
Kuth, J. R. ....Duluth
Laird, A. T.................Duluth
Le Pak, Francis J..........Duluth
Linneman, N. L...........Duluth
Lum, C. E...................Duluth
Lynam, F....................Duluth
McAuliffe, J. A............Duluth
McCabe, W. F.............Duluth
McComb, C. F..............Duluth
McCoy, Mary K............Duluth
McDonald, A. L...........Duluth
McGiffert, E. N..............Duluth
McMahon, Chas..Copperville, Tenn.
Magie, W. H............... Duluth
Malmgren, C. V...........Virginia
Maynard, C. W...........Eveleth
More, C. W.................Eveleth

Morss, Clarence R........Coleraine
Murphy, Ignatius J..........Duluth
Murray, D. D...............Duluth
Nyquist, J. E. ....Cloquet
Oredson, O. A.............Duluth
Pare, L. T.................Duluth
Parker, O. W..................Ely
Patton, F. J................Duluth
Payette, C. H...............Duluth
Pengelly, Edward J.......Hibbing
Robinson, J. M.............Duluth
Rowe, O. W................Duluth
Schroeder, Charles H.......Duluth
Schwartz, A. H.............Duluth
Seashore, D. E.............Duluth
Smith, B. A..............Biwabik
Stewart, C. A.............Duluth
Sukeforth, L. A. ....Duluth
Taylor, A. C...............Duluth
Taylor, C. W. ....Duluth
Taylor, Rood ....Duluth
Tilderquist, D. L.........Duluth
Tufty, J. M. O............Duluth
Tuohy, E. L...............Duluth
Vercellini, Joseph ....Duluth
Walker, A. E...............Duluth
Walters, F. R.........Moose Lake
Watkins, S. O............Carlton
Weston, J. B...............Duluth
Weum, T. W...............Duluth
Wilkinson, Stella ....Duluth
Winter, John A............Duluth
Wunder, H. E..............Duluth

FOURTH DISTRICT

COUNCILOR, F. A. KNIGHTS.....................Minneapolis

Hennepin County Medical Society

Regular meetings, first Monday in each month, except July and August

Annual meeting in January

PRESIDENT

Bradley, C. H..........Minneapolis

SECRETARY

Huennekens, E. J......Minneapolis

Abbott, A. W..........Minneapolis
Adair, F. L............Minneapolis
Aldrich, A. G..........Minneapolis
Allen, H. W............Minneapolis
Anderson, A. E.........Minneapolis
Anderson, J. D.........Minneapolis
Angell, W. A...........Minneapolis
Annis, H. B..........Minneapolis
Arey, H. C...............Excelsior
Aspelund, S. J.........Minneapolis
Aune, Martin..........Minneapolis
Aurand, W. H..........Minneapolis
Aurness, P. A..........Minneapolis
Austin, Edward E.....Minneapolis
Avery, J. Fowler.......Minneapolis
Aylmer, A. L..........Minneapolis
Baier, Florence C......Minneapolis
Baker, E. L............Minneapolis
Baker, Looe ....Minneapolis
Bakke, O. H..........Minneapolis
Baldwin, L. B..........Minneapolis
Barber, J. P...........Minneapolis
Barton, G. C..........Minneapolis
Bass, G. W...........Minneapolis
Baxter, S. H...........Minneapolis
Beard, R. O............Minneapolis
Beck, J. F.............Minneapolis
Bell, J. W.............Minneapolis
Benedict, E. E.........Minneapolis
Benjamin, A. E........Minneapolis
Benson, G. E..........Minneapolis
Bessesen, A. N. ....Minneapolis
Bissell, Frank S.......Minneapolis
Blake, James ....Hopkins
Blegen, H. M..........Minneapolis
Blomburgh, A. F.......Minneapolis
Booth, A. E............Minneapolis
Bouman, H. A..........Minneapolis
Bracken, H. M........Minneapolis
Brede, W. G...........Minneapolis
Brimmer, A. E.........Minneapolis
Brooks, Charles N.....Minneapolis
Brown, E. D..........Minneapolis
Brown, E. J............Minneapolis
Brown, Paul F.........Minneapolis
Brown, R. S...........Minneapolis
Bryant, O. R...........Minneapolis
Butler, John ....Minneapolis
Byrnes, W. J..........Minneapolis
Campbell, R. A. ......Minneapolis
Canfield, H. E.......Minneapolis
Carlaw, C. M..........Minneapolis
Cary, H. E............Minneapolis
Cates, A. B............Minneapolis
Chapman, O. S.........Minneapolis
Chowning, Wm. M.....Minneapolis
Cirkler, A. A..........Minneapolis
Cohen, H. A...........Minneapolis
Collins, Herbert O.....Minneapolis
Condit, W. H..........Minneapolis
Cook, Henry W........Minneapolis
Corbett, J. F.........Minneapolis
Cosman, E. O..........Minneapolis
Cowles, D. C..........Minneapolis
Crafts, Leo M.........Minneapolis
Cranmer, Richard C...Minneapolis
Crosby, J. A...........Minneapolis
Cross, Jno. G.........Minneapolis
Crume, Geo. P.........Minneapolis
Day, L. W.............Minneapolis
Dearborn, B. S.........Minneapolis
Deziel, G..............Minneapolis
Disen, C. F............Minneapolis
Donaldson, C. A........Minneapolis
Drake, Chas. R......Minneapolis
Driesbach, N...........Minneapolis
Dunsmoor, F. A........Minneapolis
Dutton, C. E...........Minneapolis
Egan, John M..........Minneapolis
Eggen, O. K...........Minneapolis
Eitel, Geo. G..........Minneapolis
Erb, Frederick A......Minneapolis
Ericson, J. G........Minneapolis
Farr, R. E............Minneapolis
Feidt, W. W.........Minneapolis
Fifield, Emily W......Minneapolis
FitzGerald, Don F....Minneapolis
Foote, Lucius F......Minneapolis
Fox, Jno. M.........Minneapolis
Franzen H. G..........Minneapolis
Fryberger, W. O........Minneapolis
Geist, Emil S..........Minneapolis
George, J. W..........Minneapolis
Gilkey, S. E...........Minneapolis
Gordon, G. J. ....Minneapolis
Gould, J. B............Minneapolis
Graham, B. F..........Minneapolis
Green, E. K...........Minneapolis
Guilford, H. M........Minneapolis
Hagen, G. L...........Minneapolis
Haggard, G. D.........Minneapolis
Hall, Pearl M..........Minneapolis
Hall, W. A.............Minneapolis
Hallowell, Wm. H.....Minneapolis
Hamilton, A. S.........Minneapolis
Hanscome, W. C.......Minneapolis
Hare, E. R.......... ...Minneapolis
Harrah, J. W..........Minneapolis
Harrington, C. D......Minneapolis
Hartzell, Thos. B.......Minneapolis
Haverfield, Addie R...Minneapolis
Haynes, F. E..........Minneapolis
Head, Geo. D..........Minneapolis
Hedback, A. E..........Minneapolis
Hedding, J. A........Minneapolis
Helk, H. H............Minneapolis
Henry, C. E...........Minneapolis
Higbee, Albert E......Minneapolis
Higbee, Paul A........Minneapolis
Higgins, J. H..........Minneapolis
Hill, Eleanor J........Minneapolis
Hill, R. J..............Minneapolis
Hirschfield, Adolph.....Minneapolis
Hcegh, Knut..........Minneapolis
Horning, D. W.........Minneapolis
Hunter, C. H..........Minneapolis
Hutchins, E. A........Minneapolis
Hvoslef, Jakob.........Minneapolis
Hynes, James ....Minneapolis
Hynes, J. E. ....Minneapolis
Irvine, H. G...........Minneapolis
Irwin, A. F........Cleveland, Ohio
Jacobson-Keats, Julia M..........
.....................Harvey, N. D.
Jensen, M. J..........Minneapolis
Johnson, A. E.........Minneapolis
Johnson, H. Amanda...Minneapolis
Johnson, Julius ....Minneapolis
Johnson, Nimrod A....Minneapolis
Jones, G. M...........Minneapolis
Jones, Herbert W......Minneapolis
Jones, W. A............Minneapolis
Kelly, E. S............Minneapolis
Kennedy, Jane F.......Minneapolis
Kerrick, Stanley E....Minneapolis
Kimball, H. H.........Minneapolis
King, E. A............Minneapolis
Kistler, C. M...........Minneapolis
Kistler, J. M...........Minneapolis
Knight, H. L...........Minneapolis
Knight, Ray Robert...Minneapolis
Knights, F. A. ....Minneapolis
Kohler, Geo. A........Minneapolis
Koller, L. R..........Minneapolis
Kriedt, Dan'l...........Minneapolis
Krogstadt, Olaf ,....Minneapolis
Lampson, H. G........Minneapolis
Lapierre, C. A. ....Minneapolis
Laurent, A. A........Minneapolis
Law, A. A. ....Minneapolis
Laws, C. H..........Minneapolis
Leavitt, H. H.........Minneapolis
Lee, K. J..............Minneapolis
Lee, Thos. G..........Minneapolis
Leland, M. N..........Minneapolis
Lemstrom, Jarl ....Minneapolis
Lewis, J. D...........Minneapolis
Lewis, J. M...........Minneapolis
Lind, A................Minneapolis
Lind, C. J.............Minneapolis
Linner, H. P.........Minneapolis
Linton, W. B..........Minneapolis
Litchfield, J. T.......Minneapolis
Little, J. W...........Minneapolis
Litzenberg, J. C.......Minneapolis
Loberg, A. E..........Minneapolis
Long, Jesse.... ..... .Minneapolis
Luther, Clara M.......Minneapolis
Lynch, M. J...........Minneapolis
McCollom, C. A........Minneapolis
McDaniel, Oriana.....Minneapolis
McDermott, T. E......Minneapolis
McDonald, H. N........Minneapolis
McDonald, I. C.........Minneapolis
McEachran, A.........Minneapolis
McLaughlin, J. A......Minneapolis
MacDonald, D. A.....Minneapolis
Macdonald, J. W.......Minneapolis
Macnie, J. S..........Minneapolis
Maguire, M. F.........Minneapolis
Maland, C. O..........Minneapolis
Malchow, C. W........Minneapolis
Mann, A. T............Minneapolis
Marcley, W. J.......Minneapolis
Martin, T. R...........Minneapolis
Maxeiner, Stanley R...Minneapolis
May, W. H............Minneapolis
Mead, Marion A........Minneapolis
Meyer, E. L...........Minneapolis
Miller, Hugo H........Minneapolis
Miller, Troy S.........Minneapolis
Mintener, J. W........Minneapolis
Moir, Wm. W........Minneapolis
Monahan, J. A..........Minneapolis
Moore, J. E...........Minneapolis
Moorehead, Martha B...Minneapolis
Moren, E...............Minneapolis
Morris, Minor............Hopkins
Morse, John H........Minneapolis
Morton, H. McI.......Minneapolis
Mullin, R. H...........Minneapolis
Murdock, A. J.........Minneapolis
Murphy, W. R.........Minneapolis
Murray, Wm. R........Minneapolis
Nelson, C. P ....Minneapolis
Nelson, H. S...........Minneapolis
Newhart, Horace......Minneapolis

Newkirk, H. D.........Minneapolis
Nickerson, M. L. ....Minneapolis
Nippert, L. A...........Minneapolis
Nissen, Henrik ....Minneapolis
Nootnagel, C. F.......Minneapolis
Norred, C. H. ....Minneapolis
Noth, H. W............Minneapolis
Nye, W. F..............Minneapolis
O'Brien, R. P.........Minneapolis
O'Donnell, J. E.........Minneapolis
Oberg, C. M...........Minneapolis
Oberg, Emanuel ......Minneapolis
Olson, Olaf A..........Minneapolis
Orton, H. N............Minneapolis
Owre, Oscar ....Minneapolis
Parker, E. H...........Minneapolis
Parks, Albert H.......Minneapolis
Pederson, R. M........Minneapolis
Peters, R. M............Minneapolis
Pettit, C. W............Minneapolis
Phelan, R. J...........Minneapolis
Pineo, W. B............Minneapolis
Plehn, J. F............Minneapolis
Plonske, C. J..........Minneapolis
Poehler, F. T...........Minneapolis
Poppe, Fred H........Minneapolis
Pratt, C. C...............Mankato
Pratt, F. J..............Minneapolis
Quinby, Thos. F.......Minneapolis
Quist, Henry W.......Minneapolis
Redd, J. H.............Minneapolis
Reed, Chas. A. ....Minneapolis
Rees, S. P..............Minneapolis
Rexford, L. A.........Minneapolis
Ringnell, C. J..........Minneapolis
Rishmiller, J. H........Minneapolis
Roan, Carl M..........Minneapolis
Roberts, Geo. F........Minneapolis
Roberts, Thos. S.......Minneapolis
Roberts, W. B.........Minneapolis
Robertson, H. E.....Minneapolis
Robitshek, E. C.......Minneapolis
Rochford, W. E........Minneapolis
Rodgers, C. L.........Minneapolis
Rosen, Samuel ....Minneapolis
Rutledge, J. W.........Minneapolis
Schefcik, J. F.........Minneapolis
Schjelderup, N. H......Minneapolis
Schlutz, F. W..........Minneapolis
Schmidt, Karl H. .....Minneapolis
Schulze, Geo. ....Minneapolis
Schwyzer, G............Minneapolis
Seashore, Gilbert.......Minneapolis
Sedgwick, J. P. ......Minneapolis
Seham, M. ....Minneapolis
Shelden, W. D.........Minneapolis
Simpson, J. D..........Minneapolis
Sivertsen, Ivar.........Minneapolis
Slocumb, Maude S......Minneapolis
Smith, Arthur E.......Minneapolis
Smith, C. A............Minneapolis
Smith, D. Edmund.....Minneapolis
Smith, Norman M.....Minneapolis
Soderlind, A............Minneapolis
Spratt, C. J............Minneapolis
Spratt, C. N............Minneapolis
Staples, H. L..........Minneapolis
Stewart, J. Clark......Minneapolis
Stone, A. J...........Minneapolis
Stone, J. Leslie........Minneapolis
Strachauer, Arthur C..Minneapolis
Strout, E. S............Minneapolis
Stuart, J. H............Minneapolis
Sweetser, H. B.......Minneapolis
Sweitzer, S. E. ....Minneapolis
Taft, J. O.............Minneapolis
Talbot, Ada E.........Minneapolis
Tennyson, Falk ....Minneapolis
Tennyson, Theodore ...Minneapolis
Thomas, David O. ....Minneapolis
Thomas, Geo. E.......Minneapolis
Thomas, G. H.........Minneapolis
Tibbetts, J. I..............Wayzata
Todd, F. C.............Minneapolis
Torland, A. O.........Minneapolis
Towers, F. E...........Minneapolis
Towers, Mary E........Minneapolis
Tunstead, Hugh ....Minneapolis
Tyrrell, C. C..........Minneapolis
Ulrich, Henry L.......Minneapolis
Ulrich, Mabel S........Minneapolis
Van Deboget, Lewis...Minneapolis
Voyer, Emile O........Minneapolis
Wanous, E. Z..........Minneapolis
Warham, Thos. T.....Minneapolis
Watson, C. W........Minneapolis
Watson, J. A..........Minneapolis
Watson, John......St. Louis Park
Wesbrook, F. F........Minneapolis
Weston, C. G..........Minneapolis
Wethall, A. G.........Minneapolis
Wheat, F. C...........Minneapolis
Whetstone, Mary S....Minneapolis
Whipple, C. D..........Minneapolis
White, S. M............Minneapolis
Wilcox, Archa E.......Minneapolis
Wilcox, M. Russell.....Minneapolis
Williams, C. W.........Minneapolis
Williams, H. L........Minneapolis
Williams, Robert .....Minneapolis
Williams, U. G.........Minneapolis
Wood, Douglas F......Minneapolis
Woodard, F. R.........Minneapolis
Woodworth, Elizabeth..Minneapolis
Wright, C. B...........Minneapolis
Wright, C. D'a......Minneapolis
Wright, F. R...........Minneapolis
Wright, Swan G........Minneapolis
Yoerg, O. W.........Minneapolis

Meeker County Medical Society

Regular meetings, February, May, August, and November

Annual meeting in February

PRESIDENT
Danielson, Karl A........Litchfield
SECRETARY
Robertson, J. W..........Litchfield

Brigham, F. T.............Watkins
Chapman, W. E..........Litchfield
Cutts, G. A. C...........Grove City
Donovan, J. J..........Litchfield
Hildebrandt, Ernest...Forest City
Kauffman, John H..........Dassel
Peterson, A. C...............Dassel
Peterson, George E.........Dassel
Robertson, Archibald W..Litchfield

Wright County Medical Society

Regular meetings, first Monday in January, April, July, and October

Annual meeting in October

PRESIDENT
Ridgway, A. M..........Annandale
SECRETARY
Catlin, John J. ....Buffalo

Chilton, E. Y........Howard Lake
Hawkins, E. P...........Montrose
Hill, A. L...............Monticello
Kane, J. P..................Delano
O'Hair, P..................Waverly
Roseau, Victor.........Maple Lake
Shrader, E. E..........Watertown
Smith, L. G...............Buffalo
Metcalf, J. N............Monticello

Stearns-Benton County Medical Society

Regular meetings, third Thursday in January, April, July, and October

Annual meeting in April

PRESIDENT
Lamb, Harold L.......Sauk Center
SECRETARY
Boehm, J. C.............St. Cloud

Anderson, E. A........Holdingford
Austin, W. J..............Kimball
Beaty, J. H. ....St. Cloud
Beebe, W. L. ....St. Cloud
Brigham, Charles F......St. Cloud
Brigham, G. S...........St. Cloud
DuBois, Julian A......Sauk Center
Edmunds, I. L.............St. Cloud
Friesleben, William...Sauk Rapids
Gaag, Edward W..............
..........St. Martin, P. O. Zion
Gelz, John J...........Richmond
Goehrs, H. W............Melrose
Gulde, W. C.............St. Cloud
Hilbert, Pierre A..........Melrose
Hitchings, Wm. S.......Belgrade
Jellison, E. R................Foley
Kern, Max J.............St. Cloud
Kirghis, A. J.........Sauk Center
Kuhlmann, August.........Melrose
Lewis, C. B. ....St. Cloud
Lewis, Edwin J........Sauk Center
Moynihan, A. F.......Sauk Center
Pilon, Pierre C.........Paynesville
Pinnault, H. A..........St. Joseph
Putney, George E......Paynesville
Rand, M. J...........Sauk Rapids
Rathbun, A. M................Rice
Ridgway, Alex. ......Clearwater
Sherwood, Geo. E..........Kimball
Sutton, C. S..............St. Cloud
Trace, O. C...........Clear Lake
Watson, Tolbert...........Albany
Whiting, A. D............St. Cloud
Wolner, O. H...........Hanover

Kandiyohi-Swift County Medical Society

Regular meetings, on call of the President

Annual meeting in April

PRESIDENT
Oppegaard, M. O.......Kerkoven
SECRETARY
Johnson, Hans ....Kerkhoven

Branton, Berton J........Willmar
Daignault, Oscar............Benson
Frost, H. E................Willmar
Healey, J. A.................Spicer
Jacobs, Jno. C.........Willmar
Johnson, Christian ....Willmar
Laney, R. L..............Holloway
Peterson, J. R.............Willmar
Porter, O. M..............Atwater
Rains, J. M...............Willmar
Scofield, C. L................Benson

FIFTH DISTRICT

COUNCILOR, H. M. WORKMAN......................Tracy

Camp Release District Medical Society

Renville, Chippewa, Lac qui Parle, Yellow Medicine, and Sibley Counties

Regular meetings, fourth Thursday in January, April, July, and October

Annual meeting in January

PRESIDENT

Penhall, F. W..............Morton

SECRETARY

Zimbeck, R. D. ....Montevideo

Adams, R. C...........Bird Island
Aldrich, F. H............Belview
Bacon, R. S...........Montevideo
Beck, W. M...........Clarkfield
Bergh, L. N.............Montevideo
Burns, F. W................Milan
Burns, M. A.................Milan
Bushey, M. E............Arlington
Chadbourn, A. G....Redwood Falls
Clay, E. M................Renville
Cole, H. B................Franklin
Cressy, F. J.........Granite Falls
Davison, P. C...........Clara City
Duclos, J. A.............Henderson
Duncan, H. ....Marietta
Ferguson, James B..........Olivia
Flinn, Thos. E......Redwood Falls
Flower, Ward Z............Gibbon
Gaines, E. C........Buffalo Lake
Gammell, H. W...........Madison
Giere, E. O...............Madison
Hacking, F. H........Granite Falls
Hauge, M. M............Clarkfield
Helland, J. W. ....Maynard
Holmberg, L. J............Canby
Johnson, A. E.............Madison
Johnson, H. M........ ....Dawson
Johnson, Otto F..... ... Winthrop
Jones, D. N...............Gaylord
Kanne, C. W.............Arlington
Kerns, H. ....Granite Falls
LaRue, B. F............Appleton
Lima, L. ....Montevideo
Marken, M. H..............Dawson
Mee, P. H....................Osseo
Mesker, G. H. ....Olivia
Moore, W. J.............Wood Lake
Nelson, N. A.............Dawson
Pease, G. R..........Redwood Falls
Powell, C. B...............Madison
Puffer, F. L.............Bird Island
Rogers, C. E. ....Montevideo
Schneider, J. P..........Green Isle
Stemsrud, A. A.............Dawson
Strout, G. E..............Winthrop
Walker, G. H..............Fairfax

Brown-Redwood County Medical Society

Regular meetings, January, May, and October

Annual meeting, second Tuesday in January

PRESIDENT

Schoch, J. L..............New Ulm

SECRETARY

Reineke, G. F.............New Ulm

Adams, J. L. ....Morgan
Brand, W. A. ....Redwood Falls
Brey, F. W.............Wabasso
Fritsche, L. A...........New Ulm
Gray, F. D................Marshall
Herron, D. A............Comfrey
Jamieson, Earl ...Walnut Grove
Kiefer, M. A...........Sleepy Eye
Muerding, W. ....Springfield
Piper, M. C..............Sanborn
Rothenberg, J. C........Springfield
Shrader, J. S............Springfield
Strickler, O. C............New Ulm
Sundt, Mathias ....Hanska
Vogel, J. P..............New Ulm
Weiser, G. B.............New Ulm
Wellcome, J. W. B......Sleepy Eye

Lyon-Lincoln County Medical Society

Regular meetings, third Tuesday in February, May, August, and November

Annual meeting in February

PRESIDENT

Wakefield, Wm........Lake Benton

SECRETARY

Workman, H. M. ....Tracy

Akester, Ward ....Marshall
Bacon, C. G.............Marshall
Cox, A. J.....................Tyler
Germo, Chas................Balaton
Hard, A. D...............Marshall
Hoidale, A. D. ....Tracy
Jacquot, G. L..............Ivanhoe
Jensen, J. C. ....Hendricks
Persons, C. E.............Marshall
Powers, F. H............Marshall
Robertson, J. B........Cottonwood
St. Dennis, E. F...........Ghent
Sanderson, Ed. T........Minneota
Thordarson, Th..........Minneota
Vadheim, Alfred L............Tyler
Valentine, W. H.............Tracy

SIXTH DISTRICT

COUNCILOR, A. E. SPALDING......................Luverne

Southwestern Medical Society

Pipestone, Rock, Nobles, Murray, and Cottonwood Counties

Regular meetings, second Thursday in January and July

Annual meeting in January

PRESIDENT

Dolan, C. P...........Worthington

SECRETARY

King, Emil ....Fulda

Balcom, G. G..........Lake Wilson
Bong, J. H..................Jasper
Brown, A. H.............Pipestone
Cress, P. J............Ellsworth
Doms, H. C...............Holland
Dudley, J. H...............Windom
Gerber, Lou M.............Jasper
Hart, Bruce D.......Round Lake
Leebens, John H..........Lismore
Lowe, Thomas...........Pipestone
McKeown, E. G........Edgerton
Manson, F. M. ....Worthington
May, C. C...................Adrian
Miller, Victor I..........Mankato
Mork, B. O...........Worthington
Paulson, T. S.................Hills
Rice, G. D. ....Pipestone
Richardson, W. E......Heron Lake
Richmond, D. C.........Windom
Schmidt, H. A........Westbrook
Senn, Edward W...........Slayton
Sherman, C. L.............Luverne
Smallwood, Justin ....Worthington
Sogge, L. ....Windom
Spalding, A. E.............Luverne
Sullivan, M................Adrian
Taylor, Wm. J...........Pipestone
Tofte, Josephine B....Pine City
Weiser, F. R..............Windom
Whyte, P. D.............Hardwick
Wiedow, Henry ......Worthington
Williams, A. B...........Wilmont
Williams, Leon A..........Slayton
Wright, C. O..............Luverne

Blue Earth Valley Medical Society

Faribault and Martin Counties

Regular meetings, second Thursday in January and July

Annual meeting in January

SECRETARY

Broberg, J. A. ....Blue Earth

Burton, C. N..........Blue Earth
Buser, J. R................Delavan
Butz, J. A..............Monterey
Chambers, W. C........Blue Earth
Dewey, G. W......... ..Fairmont
Durgin, F. L...............Winnebago
Gough, W. H...........Granada
Gullixson, A................Bricelyn
Holm, P. F................Wells
Hunt, F. N.............Blue Earth
Hunt, R. C..............Blue Earth
Hunte, A. F...............Truman
Jacobs, A. C................Elmore
Johnson, H. P...........Fairmont
Luedtke, G. H..........Fairmont
McGroarty, J. J.............Easton
Richardson, W. J. ....Fairmont

Jackson County Medical Society

Regular meetings, second Tuesday in May and November

Annual meeting in November

PRESIDENT

Leigh, H. L..............Lakefield

SECRETARY

Maitland, David P.........Jackson

Allen, Cora S..........Heron Lake
Allen, R. W...........Heron Lake
Arzt, Herbert L.........Jackson
Benson, Iver S.............Jackson
Moe, Anton J..........Heron Lake
Portman, William C.......Jackson
Searles, Scott ....Lakefield

Watonwan County Medical Society

Regular meetings, February, April, October, and December

Annual meeting, second Wednesday in December

PRESIDENT

Thompson, Albert .....St. James

SECRETARY

Haynes, B. H. ....St. James

Cooley, C. O. ....Madelia
Grimes, H. B.............Madelia
McCarthy, W. J...........Madelia
Rowe, W. H.... ....St. James

SEVENTH DISTRICT

COUNCILOR, F. A. DODGE........................Le Sueur

Nicollet-Le Sueur County Medical Society

Regular meetings, January and September

Annual meeting in January

PRESIDENT

McDougald, D. W.........Le Sueur

SECRETARY

Le Clerc, Joseph E.......Le Sueur
Aitkens, H. B....Le Sueur Center

Daniels, J. W.............St, Peter
Dodge, F. A.............Le Sueur
Freeman, George H......St. Peter
Hartung, H. A............Le Sueur
McIntyre, G. W..........St. Peter
Merritt, G. F..............St. Peter
Olson, R. G................Nicollet
Strathern, F. P...........St. Peter
Theissen, W. N..........Henderson
Tomlinson, H. A..........St. Peter
Valin, H. D.............Mankato
Woodworth, L. F..Le Sueur Center

McLeod County Medical Society

Regular meetings, January, April, July, and October

Annual meeting in January

PRESIDENT

Clement, J. B........Lester Prairie

SECRETARY

Maurer, E. L..............Brownton

Barrett, E. E............Glencoe
Bolles, D. W...........Minneapolis
Dulude, S. ....Bird Island
Hovorka, T. W. ....Glencoe
Nickerson, B. S............Glencoe
Sheppard, Fred.........Hutchinson
Sheppard, P. E..........Hutchinson
Tinker, C. W..............Stewart
Trutna, T. J............Silver Lake
Wakefield, Kee ....Hutchinson

Scott-Carver County Medical Society

Regular meetings, first Thursday in March, June, September, and December

Annual meeting in December

PRESIDENT

Novak, Edward E......New Prague

SECRETARY

Reiter, H. W. ....Shakopee
Buck, Fred H.........Shakopee

Fischer, H. P............Shakopee
Fischer, P. M...........Shakopee
Grivelli, Chas. T..Young America
Grivelly, H. J.....New Germany
Henricksen, H. G......New Market
Landenberger, John....New Prague
McKeon, James ......Montgomery
Maertz, Wm. F........New Prague
Moloney, G. R.........Belle Plaine
Schneider, H. A............Jordan
Soper, J. E................Norwood
Von Bohland, F. J.....Belle Plaine

Goodhue County Medical Society

Regular meetings, first Tuesday in January, April, July, and October

Annual meeting in January

PRESIDENT

Anderson, J. V. ....Red Wing

SECRETARY

Smith, M. W............Red Wing

Claydon, L. E.........Red Wing
Conley, A. T..........Cannon Falls

Conley, H. E..........Cannon Falls
Cremer, M. H..........Red Wing
Cremer, P. H........Cannon Falls
Dimmitt, F. W..........Red Wing
Gates, J. A................Kenyon
Haessly, S. B...........Red Wing
Hanson, A. M.........Red Wing
Hill, Charles...........Pine Island
Johnson, A. E........Red Wing
Jones, A. W..............Red Wing
Larson, O. O............Zumbrota
McKaig, C. B..........Pine Island
McKinstry, H. L........Red Wing
Wellner, G. C............Red Wing
Werner, N. L............Red Wing

Rice County Medical Society

Regular meetings, first Wednesday in January, April, July, and October

Annual meeting in January

PRESIDENT

Rogers, A. C..............Faribault

SECRETARY

Davis, F. U...............Faribault

Hunt, W. A..............Northfield
Huxley, F. R. ....Faribault
Lane, Laura A........Northfield
Lee, W. P.............Northfield
Lexa, F. J...............Lonsdale
McBroom, D. E...........Adams
Macdonald, A..........Morristown
Mayland, M. L............Faribault
Phillips, J. G...........Northfield
Phillips, J. R............Northfield
Robilliard, W. H.........Faribault
Rose, F. M. ....Faribault
Rumpf, W. H.............Faribault
Seeley, I. F..............Northfield
Seeley, J. S...............Faribault
Smith, H. R.............Faribault
Smith, P. A............ ..Faribault
Strang, D. M.............Northfield
Warren, F. S..............Faribault
White, J. B...............Jordan
Wilson, W...............Northfield

Wabasha County Medical Society

Regular meeting (annually) first Thursday after first Monday in July

PRESIDENT

Shaughnessy, M. J........Wabasha

SECRETARY

Wilson, W. F. ....Lake City

Adams, W. T. ....Elgin
Bayley, E. H.............Lake City
Cochrane, W. J..........Lake City
Dempsey, D. P.............Kellogg
Fleischhauer, D. S......Wabasha
French, E. A.............Plainview
Heagerty, W. B.........Mazeppa
Ingram, L. C.........Zumbro Falls
Nauth, W. W............Minneiska
Slocumb, H. H.........Plainview
Slocumb, J. A............Plainview

EIGHTH DISTRICT

COUNCILOR, A. O. BJELLAND......................Mankato

Blue Earth County Medical Society

Regular meetings last Monday of each month

Annual meeting, December meeting

PRESIDENT

Holman, C. J..............Mankato

SECRETARY

Dahl, G. A. ....Mankato

Allen, Frank A.............Elysian
Andrews, J. W............Mankato
Andrews, Roy N..........Mankato
Benham, E. W............Mankato
Bigelow, Charles E...Madison Lake
Bjelland, A. O.............Mankato
Bomberger, F. J..........Mapleton
Clement, T. G....Vernon Center
Curran, G. R..............Mankato
Field, Merton ....Canby
Gosslee, G. L....Minnesota Lake
Hering, H. H.........Lake Crystal
Holbrook, J. S. ....Mankato
Hughes, Jane C...........Mankato
James, J. H..............Mankato
Kelly, T. C................Mankato
Kemp, A. F................Mankato
Krueger, L. W............Mapleton
Liedloff, A. G..............Mankato
Lloyd, H. J.........Lake Crystal
McMicheal, O. H.....Vernon Center
Merrill, J. E...............Amboy
Osborn, Lida..............Mankato
Pratt, C. C.............Mankato
Rosenwald, J. P........Mankato
Schlesselman, J. T...Good Thunder
Schmitt, A. F............Mankato
Sohmer, A. E..............Mankato
Williams, John.......Lake Crystal

Dodge County Medical Society

Regular meetings, third Wednesday in June and September

Annual meeting in June

PRESIDENT

Thimsen, N. C...........Hayfield

SECRETARY

Davis, F. W................Kasson

Adams, R. T...........Mantorville
Baker, A. L. ....Kasson
Belt, W. E...........Dodge Center
Bigelow, C. S........Dodge Center
Clifford, F. F........West Concord
Harrison, E. E.......West Concord
Way, O. F..............Clairmont

Freeborn County Medical Society

Regular meetings, fourth Tuesday in May and November

Annual meeting in May

PRESIDENT

Von Berg, J. P..........Albert Lea

SECRETARY

Stevenson, Robert G...Albert Lea

Bessesen, W. A.........Albert Lea
Burton, Oscar A..Sarasota, Florida
Calhoun, Frank W......Albert Lea
Christiansen, James ....Alden
Freeman, J. P............Glenville
Garlock, A. V.............Hartland
Gordon, David..........Albert Lea
Gramenz, F.............Albert Lea
Kamp, Byron A...............Alden
Nannestad, J. R.........Albert Lea
Palmer, W. L.........Albert Lea
Rodli, O. E.............Albert Lea
Todd, W. E.............Albert Lea

Houston-Fillmore County Medical Society

Regular meetings, May and October; one midsummer meeting

Annual meeting, first Thursday in May

PRESIDENT

Dunn, J. T...........Albert Lea

SECRETARY

Fischer, O. F..............Houston

Browning, W. E. ....Caledonia
Drake, F. A............Lanesboro
Eby, Cyrus B........Spring Valley
Gowdy, F. A..............Harmony
Helland, G. M.........Spring Grove
Hvoslef, J. C. ....Lanesboro
Lannin, J. C...............Mabel
Love, George A..........Preston
Onsgard, C. K.............Rushford
Onsgard, L. K.............Houston
Reay, G. R..................Hokah
Utley, J. D..........Spring Valley
Woodruff, C. W...........Chatfield

Mower County Medical Society

Regular meetings, second Wednesday in January, April, July, and October

Annual meeting in October

PRESIDENT

Smith, E. V................Adams

SECRETARY

Torkelson, P. T...............Lyle

Allen, A. W.................Austin
Cobb, W. F..................Lyle
Gray, G. W..............Garfield
Hart, M. J..................LeRoy
Hegge, O. H................Austin

Henslin, A. E...............LeRoy
Leck, Clifford C............Austin
Mitchell, R. S.......Grand Meadow
Rogers, G. M. F.............Austin
Schottler, G. J..............Dexter

Olmsted County Medical Society

Regular meetings, second Friday in each alternating month

Annual meeting in January

PRESIDENT

Wilson, L. B. ....Rochester

SECRETARY

Crewe, John E...........Rochester

Balfour, Donald ....Rochester
Beckman, E. H...........Rochester
Braasch, W. F...........Rochester
Dugan, R. C..................Eyota
Eusterman, Geo. ......Rochester

Fawcett, Charles E....Stewartville
Giffin, H. Z..............Rochester
Graham, C...............Rochester
Granger, Chas. T......Rochester
Granger, Gertrude B....Rochester
Henderson, M. S.........Rochester
Heyerdale, O. C.......Rochester
Joyce, George T.........Rochester
Judd, E. S................Rochester
Kilbourne, A. F........Rochester
Linton, Laura A........Rochester
MacCarty, W. C..........Rochester

Mayo, C. H..............Rochester
Mayo, W. J...............Rochester
Mosse, F. R.............Rochester
Mussey, R. D..........Rochester
Phelps, R. M............Rochester
Plummer, H. S..........Rochester
Russell, H. R..........Stewartville
Selby, J. H............Rochester
Smith, F. L................Chatfield
Stacy, Leda ....Rochester
Stinchfield, A. W.........Rochester
Witherstine, H. H........Rochester

Steele County Medical Society

Regular meetings, first Tuesday in each month

Annual meeting in January

PRESIDENT

Melby, Benedick..Blooming Prairie

SECRETARY

Stewart, Allan B. ....Owatonna

Adair, John H. ....Owatonna
Andrist, J. W............Owatonna
Ertel, E. Q..............Ellendale
Eustis, W. C. ....Owatonna
Hatch, Theo. L. ....Owatonna

Morehouse, G. G........Owatonna
Peterson, Christian ...Owatonna
Smersh, Francis M......Owatonna
Warren, J. W....Blooming Prairie
Wood, Harry G........Rochester

Waseca County Medical Society

Regular meetings, first Monday in January, April, July, and October

Annual meeting in January

PRESIDENT

Cory, Wm. M. ....Waterville

SECRETARY

Meilicke, W. A...........Janesville

Batchelder, E. J.....New Richland
Blanchard, H. G...........Waseca
Chamberlin, W. A.........Waseca
Hagen, H. O.........New Richland
Joyce, T. M...........Janesville

Lynn, J. F..................Waseca
O Hara, J. J..............Janesville
Rudolf, A. J................Waseca
Shrodes, George H......Waterville
Swartwood, F. A...........Waseca

Winona County Medical Society

Regular meetings, first Monday in January, April, July, and October

Annual meeting in January

PRESIDENT

Muir, Edwin S. ....Winona

SECRETARY.

McGaughey, H. F...........Winona

Clark, C. N.............St. Charles
Clay, F. H...............Winona
Dolder, F. C............St. Charles
Gates, G. L................Winona

Heise, W. F. C...........Winona
Keyes, E. D..............Winona
Leicht, Oswald ....Winona
Lichtenstein, H. M.........Winona
Lindsay, W. V.............Winona
Lynch, Elizabeth ....Winona
Lynch, J. L...............Winona
McLaughlin, E. M. ....Winona
Munger, L. H.............Winona

Neumann, C. A.........Lewiston
Neumann, W. H. ....Lewiston
Pritchard, D. B.............Winona
Robbins, C. P..............Winona
Rollins, F. H............St. Charles
Scott, J. W............St. Charles
Steinbach, John ....Winona
Stewart, D. A..............Winona
Tweedy, G. J..............Winona

ALPHABETICAL ROSTER

Aborn, W. H	Dilworth
Abbott, A. W	Minneapolis
Abbott, E. J	St. Paul
Abbott, Wm. P	Duluth
Adair, F. L	Minneapolis
Adair, John H	Owatonna
Adams, B. S	Hibbing
Adams, J. L	Morgan
Adams, R. C	Bird Island
Adams, R. T	Mantorville
Adams, W. T	Elgin
Adkins, C. M	Ogema
Aitkens, H. B	Le Sueur Center
Akester, Ward	Marshall
Aldrich, A. G	Minneapolis
Aldrich, F. H.	Belview
Alexander, F. H	St. Paul
Allen, A. W	Austin
Allen, Cora S	Heron Lake
Allen, Frank A	Elysian
Allen, F. H	Staples
Allen, H. W	Minneapolis
Allen, Mason	St. Paul
Allen, R. W	Heron Lake
Ancker, A. B	St. Paul
Anderson, A. E	Minneapolis
Anderson, C. A	Rush City
Anderson, Ernest A	Holdingford
Anderson, James C	Duluth
Anderson, J. D	Minneapolis
Anderson, J. V	Red Wing
Anderson, L. N	Duluth
Andrews, J. W	Mankato
Andrews, Roy N	Mankato
Andrist, J. W	Owatonna
Angell, W. A	Minneapolis
Annis, H. B	Minneapolis
Arey, H. C	Excelsior
Armstrong, J. M	St. Paul
Armstrong, L. W	Breckenridge
Arneson, Thomas	Twin Valley
Arnold, S. E	Clinton
Arzt, C. P	St. Paul
Arzt, Herbert L	Jackson
Aspelund, S. J	Minneapolis
Aune, Martin	Minneapolis
Aurand, W. H	Minneapolis
Aurness, P. A	Minneapolis
Austin, Edward E	Minneapolis
Austin, W. J	Kimball
Avery, J. Fowler	Minneapolis
Awty, W. J	Moorhead
Ayers, G. T	Ely
Aylmer, A. L	Minneapolis
Backe, H. E	Kenyon
Bacon, C. G	Marshall
Bacon, Knox	St. Paul
Bacon, L. C	St. Paul
Bacon, R. S	Montevideo
Baier, Florence C	Minneapolis
Baker, A. C	Fergus Falls
Baker, A. L	Kasson
Baker, E. L	Minneapolis
Baker, Looe	Minneapolis
Bakke, O. H	Minneapolis
Balcome, F. E	St. Paul
Balcom, G. G	Lake Wilson
Baldwin, L. B	Minneapolis
Balfour, Donald	Rochester
Ball, C. R	St. Paul
Barber, J. P	Minneapolis
Barclay, A	Cloquet
Barney, L. A	Duluth
Barrett, E. E	Glencoe
Barringer, Paul E	St. Paul
Barsness, Nellie	St. Paul
Barton, E. R	Frazee
Barton, G. C	Minneapolis
Bass, G. W	Minneapolis
Batchelder, E. J	New Richland
Batcheller, Oliver T	Brainerd
Baxter, S. H	Minneapolis
Bayley, E. H	Lake City
Beadie, W. D	St. Paul
Beard, R. O	Minneapolis
Beardsley, W. R	Crosby
Beaty, J. H.	St. Cloud
Beaudoux, H. A	St. Paul
Beck, J. F	Minneapolis
Beck, W. M	Clarkfield
Beckley, F. L.	St. Paul
Beckman, E. H	Rochester
Beebe, Warren L	St. Cloud
Belse, R. A	Brainerd
Bell, J. W	Minneapolis
Belt, W. E	Dodge Center
Benedict, E. E	Minneapolis
Benepe, L. M	St. Paul
Benham, E. W	Mankato
Benjamin, A. E	Minneapolis
Bennion, P. H.	St. Paul
Benson, G. E	Minneapolis
Benson, Iver S	Jackson
Bergh, L. N	Montevideo
Berthold, J. L	Perham
Bessesen, A. N	Minneapolis
Bessesen, W. A	Albert Lea
Bettingen, J. W	St. Paul
Bigelow, Charles E	Madison Lake
Bigelow, C. S	Dodge Center
Bissell, Frank S	Minneapolis
Bjelland, A. O.	Mankato
Blanchard, H. G	Waseca
Blake, James	Hopkins
Blegen, H. M	Minneapolis
Blomburgh, A. F	Minneapolis
Bloom, C. J	Mora
Bock, R. A	St. Paul
Boeckmann, Eduard	St. Paul
Boeckmann, Egil	St. Paul
Boehm, J. C	St. Cloud
Bohland, E. H	St. Paul
Bole, R. S	St. Paul
Boleyn, E. S	Stillwater
Bolles, D. W	Minneapolis
Bolsta, Chas	Ortonville
Bomberger, F. J	Mapleton
Bong, J. H	Jasper
Booth, A. E	Minneapolis
Bouman, H. A	Minneapolis
Bowers, J. T	Gully
Boxell, C. E	St. Paul
Boyer, S. H	Duluth
Braasch, W. F	Rochester
Bracken, H. M	Minneapolis
Braden, A. J	Duluth
Bradley, C. H	Minneapolis
Brand, W. A	Redwood Falls
Branton, Berton J	Willmar
Bratrud, Theodore	Warren
Bray, C. W	Biwabik
Bray, E. R	St. Paul
Brede, W. G	Minneapolis
Breitenbach, O. C	Frazee
Brey, F. W	Wabasso
Briggs, F. W	Hendrum
Brigham, Charles F	St. Cloud
Brigham, F. T	Watkins
Brigham, G. S	St. Cloud
Brimhall, J. B	St. Paul
Brimmer, A. E	Minneapolis
Bristol, L. D	St. Paul
Broberg, J. A.	Blue Earth
Brooks, Charles N	Minneapolis
Brooks, D. F	St. Paul
Brooks, G. F	Stevenson
Brown, A. H	Pipestone
Brown, E. D	Minneapolis
Brown, E. I	St. Paul
Brown, E. J	Minneapolis
Brown, Harry	Duluth
Brown, J. C	St. Paul
Brown, Paul F	Minneapolis
Brown, R. S	Minneapolis
Brown, S. E	St. Paul
Browning, W. E	Caledonia
Brunelle, A. M	Cloquet
Bryant, O. R	Minneapolis
Buckley, E. W	St. Paul
Buck, Fred H	Shakopee
Budd, J. D.	Two Harbors
Bullen, F. W	Hibbing
Burch, F. E	St. Paul
Burfiend, G. H.	Afton
Burnap, W. L.	Pelican Rapids
Burns, F. W	Milan
Burns, M. A	Milan
Burns, R. M	St. Paul
Burton, C. N	Blue Earth
Burton, Oscar A	Sarasota, Florida
Buser, J. R	Delavan
Bushey, M. E	Arlington
Butler, John	Minneapolis
Butz, J. A	Monterey
Byrnes, W. J	Minneapolis
Caine, C. E	Morris
Caldwell, D. K	St. Paul
Caldwell, James P	Colcraine
Calhoun, Frank W	Albert Lea
Cameron, J. A	St. Paul
Campbell, A. A	South St. Paul
Campbell, E. P	St. Paul
Campbell, J. E	St. Paul
Campbell, R. A	Minneapolis
Campbell, R. W	Swanville
Canfield, H. E	Minneapolis
Cannon, Harry	St. Paul
Carlaw, C. M	Minneapolis
Carman, Chas. L	St. Paul
Carman, J. B	Detroit
Carman, J. E	Detroit
Cary, H. E	Minneapolis
Cates, A. B	Minneapolis
Catlin, John J	Buffalo
Catlin, T. J	Palisade
Cavanaugh, J. O	St. Paul
Cavanor, Frank T	Wheaton
Chadbourn, A. G	Redwood Falls
Chamberlin, J. W	St. Paul
Chamberlin, W. A	Waseca
Chambers, W. C	Blue Earth
Chapman, O. S	Minneapolis
Chapman, T. L	Duluth
Chapman, W. E	Litchfield
Charpentier, A. A	St. Paul
Cheney, E. L	Duluth
Chilton, E. Y	Howard Lake
Chowning, Wm. M	Minneapolis
Christenson, C. R	Starbuck
Christiansen, James	Alden
Christianson, A	St. Paul
Christie, George R	Long Prairie
Christison, J. T	St. Paul
Cirkler, A. A	Minneapolis
Clair, J. B	Oslo
Clark, C. H	Duluth
Clark, C. N	St. Charles
Clark, T. C	Stillwater
Clay, E. M	Renville
Clay, F. H	Winona
Claydon, L. E	Red Wing
Clement, J. B	Lester Prairie
Clement, T. G	Vernon Center
Clifford, F. F	West Concord
Cobb, W. F	Lyle
Cochrane, W. J	Lake City
Cohen, H. A	Minneapolis
Cole, Herman B	Franklin
Coleman, Fred B	Carlos
Collins, Arthur N	Duluth
Collins, Herbert O	Minneapolis
Collins, Homer C	Duluth
Colvin, A. R	St. Paul
Comstock, A. E	St. Paul
Condit, W. H	Minneapolis
Conkey, C. D.	Duluth
Conley, A. T	Cannon Falls
Conley, H. E	Cannon Falls
Cook, Henry W	Minneapolis
Cook, Paul B	St. Paul
Cooley, C. O	Madelia
Cooney, H. C	Princeton
Corbett, J. F	Minneapolis
Corrigan, J. E	Spooner
Cory, Wm. M	Waterville
Cosman, E. O	Minneapolis
Coulter, Chas. F	Wadena
Courtney, Walter	Brainerd
Coventry, W. A	Duluth
Cowles, D. C	Minneapolis
Cox, A. J	Tyler
Crafts, Leo M	Minneapolis
Cranmer, Richard C	Minneapolis
Cremer, M. H	Red Wing
Cremer, P. H	Cannon Falls
Cress, P. J	Ellsworth
Cressy, F. J	Granite Falls
Crewe, John E	Rochester
Crosby, J. A	Minneapolis
Cross, Jno. G	Minneapolis
Crowe, J. H.	Virginia
Crume, Geo. P	Minneapolis
Cuff, W. S	St. Paul
Curran, G. R	Mankato
Cutts, G. A. C	Grove City
Dahl, G. A.	Mankato
Dahlquist, G. W	Lancaster
Daignault, Oscar	Benson
Dampier, C. E	Crookston
Daniels, J. W	St, Peter
Danielson, Karl A	Litchfield
Darling, J. B	St. Paul

Darrow, Daniel C.........Moorhead
Daugherty, E. B.......Pine City
Daugherty, L. E...........St. Paul
Davis, H. S..................Duluth
Davis, F. U...............Faribault
Davis, F. W................Kasson
Davis, Herbert ....St. Paul
Davis, L. A..................Dalton
Davis, William ....St. Paul
Davison, P. C...........Clara City
Day, L. W.............Minneapolis
Dearborn, B. S.........Minneapolis
Dempsey, D. P.............Kellogg
Dennis, W. A............St. Paul
Denny, C. F..............St. Paul
Desmond, M. A..............Akeley
Dewar, John E..........St. Paul
Dewey, G. W..............Fairmont
Deziel, G...............Minneapolis
Dickson, T. H., Jr........St. Paul
Dimmitt, F. W..........Red Wing
Disen, C. F............Minneapolis
Dittman, Geo. C..........St. Paul
Dodge, Franklin A.......Le Sueur
Dodge, W. M.........Farmington
Dohm, A. J................St. Paul
Dohm, C. L..............St. Paul
Dolan, C. P...........Worthington
Dolan, W. G..............Cloquet
Dolder, F. C...........St. Charles
Doms, H. C..............Holland
Donaldson, C. A.......Minneapolis
Donovan, J. J...........Litchfield
Drake, Chas. R......Minneapolis
Drake, F. A.............Lanesboro
Dredge, H. P...........Sandstone
Drenning, F. C.............Duluth
Driesbach. S...........Minneapolis
Dryden, F. M...........Crookston
DuBois, Julian A......Sauk Center
Duclos, J. A.............Henderson
Dudley, J. H..............Windom
Dugan, R. C...............Eyota
Dulude, S. ....Bird Island
Duncan, H. ....Marietta
Dunlop, A. H...........Crookston
Dunlop, Harry ....Duluth
Dunn, J. T...........Albert Lea
Dunning, A. W...........St. Paul
Dunsmoor, F. A........Minneapolis
Durgin, F. L..........Winnebago
Dutton, C. E..........Minneapolis

Earl, George A.............St. Paul
Earl, R. O.................St. Paul
Eberlin, E. A............Glenwood
Eby, Cyrus B.........Spring Valley
Edmunds, I. L............St.Cloud
Egan, John M.........Minneapolis
Eggen, O. K..........Minneapolis
Ehmke, W. C.........Willow River
Eitel, Geo. G..........Minneapolis
Ekblad, J. W..............Duluth
Eklund, J. J...............Duluth
Elsey, J. R..............Glenwood
Erb, Frederick A......Minneapolis
Ericson, J. G........Minneapolis
Ertel, E. Q............Ellendale
Eshelby, E. C.............St. Paul
Esser, John ....Perham
Estrem, C. O...............Detroit
Eusterman, Geo. ......Rochester
Eustis, W. C............Owatonna
Ewing, C. F.............Wheaton

Fahey, E. W................Duluth
Farmer, J. C...........McKinley
Farr, R. E.............Minneapolis
Fawcett, Chas. E....Stewartville
Feidt, W. W.........Minneapolis
Ferguson, J. C............St. Paul
Ferguson, James B.........Olivia
Field, Merton ....Canby
Fifield, Emily W......Minneapolis
Fischer, H. P.............Shakopee
Fischer, O. F.............Houston
Fischer, P. M.............Shakopee
FitzGerald, Don F....Minneapolis
Fitzgerald, E. T..........Morris
Fjelstad, C. A...........Glenwood
Flagg, S. D...............St. Paul
Fleischhauer, D. S......Wabasha
Fleming, A. S............Wheaton
Fleming, James ....Cloquet
Flinn, W. E........Redwood Falls
Flower, Ward Z...........Gibbon
Foote, Lucius F......Minneapolis
Fortier, E. L...........Little Falls
Fosness, E. G.............St. Paul

Foster, Burnside ....St. Paul
Fox, Jno. M..........Minneapolis
Franzen, H. G..........Minneapolis
Frasier, G. W........Minneapolis
Freeborn, J. A........Fergus Falls
Freeman, Charles D.....St. Paul
Freeman, George H......St. Peter
Freeman, J. P...........Glenville
Freligh, E. O'B..........Stillwater
French, E. A.............Plainview
Friesleben, William...Sauk Rapids
Fritsche, L. A..........New Ulm
Froehlich, H. W...........Hibbing
Frost, H. E................Willmar
Fryberger, W. O........Minneapolis
Fullerton, W. S............St. Paul
Furber, W. W........Cottage Grove

Gaag, Edward W..............
..........St. Martin, P. O. Zion
Gambell, F. H....Thief River Falls
Gammell, H. W...........Madison
Gaines, E. C........Buffalo Lake
Gates, C. E..............Goodhue
Gates, G. L................Winona
Gates, J. A................Kenyon
Garand, J. H...............Dayton
Garlock, A. V.............Hartland
Gauger, E. C.............St. Paul
Geer, E. F...............St. Paul
Geist, Emil S..........Minneapolis
Gelz, John J...........Richmond
George, J. W..........Minneapolis
Gerber, Lou M..............Jasper
Germo, Chas................Balaton
Ghent, M. M...............St. Paul
Gibbon, L. L................Lowry
Giere, E. O...............Madison
Giffin, H. Z..............Rochester
Gilfillan, J. S.............St. Paul
Gilkey, S. E...........Minneapolis
Gilkinson, A. J. ....**Osakis**
Gillette, A. J..............St. Paul
Gillespie, N. H..............Duluth
Gilmore, R. T.............Bemidji
Giroux, A. A................Duluth
Goehrs, H. W..............Melrose
Goltz, E. V...............St. Paul
Gordon, David..........Albert Lea
Gordon, G. J. ....Minneapolis
Gosslee, A. F..........Deer Creek
Gosslee, G. L....Minnesota Lake
Gothe, L. W.............St. Paul
Gough, W. H............Granada
Gould, J. B...........Minneapolis
Gowdy, F. A.............Harmony
Graham, B. F..........Minneapolis
Graham, C...............Rochester
Graham, David ....Duluth
Graham, R..................Duluth
Gramenz, F.............Albert Lea
Granger, Chas. T......Rochester
Granger, Gertrude B....Rochester
Gravelle, J. M. A........St. Paul
Graves, Carlton ....**Aitkin**
Grawn, F. A. ....Duluth
Gray, C. E...............Rush City
Gray, F. D................Marshall
Gray, G. W..............Garfield
Greeley, L. Q................**Duluth**
Greene, Charles Lyman...St. Paul
Green, E. K...........Minneapolis
Grimes, H. B.............Madelia
Grivelli, Chas. T..Young America
Grivelly, H. J.....New Germany
Guilford, H. M........Minneapolis
Gulde, W. C...............St. Cloud
Gullixson, A. ....Bricelyn
Gunz, A. N...........Centre City

Hacking, F. H........Granite Falls
Haessly, S. B............Red Wing
Hagen, G. L...........Minneapolis
Hagen, H. O........New Richland
Hagen, Ole J............Moorhead
Haggard, G. D..........Minneapolis
Haines, J. H.............Stillwater
Hall, A. R..................St. Paul
Hall, Elmer E..........Little Falls
Hall, Pearl M..........Minneapolis
Hall, W. A.............Minneapolis
Hallowell, Wm. H.....Minneapolis
Hamel, C. E..............McIntosh
Hamilton, A. S.........Minneapolis
Hammes, E. M............St. Paul
Hammond, J. F...........St. Paul
Haney, C. L.................Duluth
Hanscome, W. C.......Minneapolis
Hanson, A. M.........Red Wing

Hard, A. D...............Marshall
Harding, J. C.............St. Paul
Hare, E. R............Minneapolis
Harrah, J. W..........Minneapolis
Harrington, C. D.....Minneapolis
Harrison, E. E......West Concord
Hart, A. B................Pequot
Hart, Bruce D.......Round Lake
Hart, M. J..................LeRoy
Hartung, H. A............Le Sueur
Hartzell, Thos. B......Minneapolis
Harwood, W. E............Eveleth
Haskell, A. D..........Alexandria
Hatch, Theodore L.....Owatonna
Haugan, O. M.........Fergus Falls
Hauge, M. M.............Clarkfield
Haugen, G. T..........Battle Lake
Havens, J. G. W...........Cloquet
Haverfield, Addie R....Minneapolis
Hawkins, E. P...........Montrose
Hawkins, V. J.............St. Paul
Haynes, B. H. ....St. James
Haynes, F. E..........Minneapolis
Head, Geo. D..........Minneapolis
Heagerty, W. B.........Mazeppa
Healey, J. A................Spicer
Heath, A. C...............St. Paul
Hedback, A. E..........Minneapolis
Hedding, J. A........Minneapolis
Hegge, O. H.................Austin
Heimark, J. H...........Hawley
Heimark, O. E.............Duluth
Heise, W. F. C............Winona
Helk, H. H............Minneapolis
Helland, G. M.........Spring Grove
Helland, J. W. ....Maynard
Hemstead, Bert E........Brainerd
Henderson, M. S.........Rochester
Henderson, A..Powell River, B. C.
Henricksen, H. G......New Market
Hendrickson, J. F.........Fertile
Henry, C. E...........Minneapolis
Hensel, Charles N........St. Paul
Henslin, A. E................LeRoy
Hering, H. H.........Lake Crystal
Herron, D. A............Comfrey
Hesselgrave, S. S..........St. Paul
Hewson, Wilfred J.....Nashwauk
Heyerdale, O. C.......Rochester
Hieber, H. G...Thief River Falls
Higbee, Albert E......Minneapolis
Higbee, Paul A........Minneapolis
Higg ns, J. H.........Minneapolis
Higgs, W. W............Eveleth
Hilbert, Pierre A...........Melrose
Hildebrandt, Ernest...Forest City
Hilger, D. D...............St. Paul
Hill, A. L...............Monticello
Hill, Charles............**Pine Island**
Hill, Eleanor J........Minneapolis
Hill, R. J..............Minneapolis
Hirschfield, Adolph.....Minneapolis
Hirschfield, M. S............**Duluth**
Hitchings, Wm. S.......Belgrade
Hodgson, H. H.........Crookston
Hoegh, Knut ....Minneapolis
Hoff, Alfred ....St. Paul
Hoff, Peder A..............St. Paul
Hoidale, A. D. ....Tracy
Hoit, Edward E............Detroit
Holbrook, J. S............Mankato
Holcomb, O. W............St. Paul
Holdridge, G. A....Browersville
Holl, P. M...........Minneapolis
Hollands, Wm...............Fisher
Holm, P. F..................Wells
Holman, C. J..............Mankato
Holmberg, L. J............Canby
Holte, H. ....Crookston
Holst, C. F...........Little Falls
Holst, J. B...........Little Falls
Hopkins, Mary P.......White Bear
Horning, D. W.........Minneapolis
Hovde, Hans N.............Duluth
Hovorka, T. W. ....Glencoe
Hubert, R. L..............St. Paul
Hughes, Jane C..........Mankato
Hulburd, H. L...............Morris
Humphrey, E. W........Moorhead
Humphrey, W. R........Stillwater
Huennekens, E. J......Minneapolis
Hunt, F. N............Blue Earth
Hunt, R. C.............Blue Earth
Hunt, W. A..............Northfield
Hunte, A. F................Truman
Hunter, C. H...........Minneapolis
Hutchins, E. A........Minneapolis
Huxley, F. R............Faribault
Hvoslef, Jakob ....Minneapolis

Hvoslef, J. C.	Lanesboro
Hynes, James	Minneapolis
Hynes, J. E.	Minneapolis

Ide, A. W.	Brainerd
Ingerson, Carl A.	St. Paul
Ingram, L. C.	Zumbrota
Irvine, H. G.	Minneapolis
Irwin, A. F.	Cleveland, Ohio

Jacobs, A. C.	Elmore
Jacobs, Jno. C.	Willmar
Jacobson-Keats, Julia M.	Harvey, N. D
Jacquot, G. L.	Ivanhoe
James, J. H.	Mankato
Jamieson, Earl	Walnut Grove
Jellison, E. R	Foley
Jensen, J. C.	Hendricks
Jensen, M. J.	Minneapolis
Jensen, T. J.	Waseca
Jern, J. H.	Chicago, Ill.
Johnson, A. E.	Madison
Johnson, A. E.	Minneapolis
Johnson, A. E.	Red Wing
Johnson, Asa M.	St. Paul
Johnson, Christian	Willmar
Johnson, E. W.	Bemidji
Johnson, Geo. L.	Newfolden
Johnson, H. Amanda	Minneapolis
Johnson, Hans	Kerkhoven
Johnson, H. C.	St. Paul
Johnson, H. M.	Dawson
Johnson, H. P.	Fairmont
Johnson, Julius	Minneapolis
Johnson, Nimrod A.	Minneapolis
Johnson, Oscar V.	Sebeka
Johnson, Otto F.	Winthrop
Johnson, T. H.	St. Paul
Jones, A. W.	Red Wing
Jones, D. C.	St. Paul
Jones, D. N.	Gaylord
Jones, E. M.	St. Paul
Jones, G. M.	Minneapolis
Jones, Herbert W.	Minneapolis
Jones, W. A.	Minneapolis
Joyce, Geo. T.	Rochester
Joyce, T. M.	Janesville
Judd, E. S.	Rochester
Judson, W. E.	West Duluth

Kaess, A. J.	Fargo, N. D.
Kalinoff, D.	Stillwater
Kamp, Byron A.	Alden
Kane, J. P.	Delano
Kannary, E. L.	St. Paul
Kanne, C. W.	Arlington
Karn, B. R.	Ortonville
Karn, J.	Ortonville
Kauffman, John H.	Dassel
Kean, N. D.	Coleraine
Kelly, B. W.	Aitkin
Kelly, E. S.	Minneapolis
Kelly, John V.	St. Paul
Kelly, T. C.	Mankato
Kelly, W. D.	St. Paul
Kemp, A. F.	Mankato
Kennedy, Jane F.	Minneapolis
Kenyon, Paul E.	Wadena
Kern, Max J.	St. Cloud
Kerns, H.	Granite Falls
Kerrick, Stanley E.	Minneapolis
Keyes, C. R.	Duluth
Keyes, E. D.	Winona
Kiefer, M. A.	Sleepy Eye
Kierland, P. E.	Mahnomen
Kilbourne, A. F.	Rochester
Kimball, H. H.	Minneapolis
King, E. A.	Minneapolis
King, Emil	Fulda
Kirghis, A. J.	Sauk Center
Kirmse, G. W.	Frazee
Kistler, A. S.	St. Paul
Kistler, C. M.	Minneapolis
Kistler, J. M.	Minneapolis
Kittelson, T. N.	Fergus Falls
Kjelland, J. S	Crookston
Knauff, M. K.	Two Harbors
Knickerbocker, Frank H.	Staples
Knight, H. L.	Minneapolis
Knight, Ray Robert	Minneapolis
Knights, F. A.	Minneapolis
Koch, J. C.	Blackduck
Kohler, Geo. A.	Minneapolis
Koller, Herman M.	Duluth
Koller, L. R.	Minneapolis
Kraft, Peter	Duluth
Kriedt, Dan'l	Minneapolis
Krogstadt, Olaf	Minneapolis
Krueger, L. W.	Mapleton
Kuhlmann, August	Melrose
Kuth, J. R.	Duluth

Laird, A. T.	Duluth
Lalonde, Edmond	St. Paul
Lamb, Harold L.	Sauk Center
Lampson, H. G.	Minneapolis
Lande, Wm. B.	St. Paul
Landeen, F. G.	Stillwater
Landenberger, John	New Prague
Lane, Laura A.	Northfield
Laney, R. L.	Holloway
Lankester, Howard	St. Paul
Lannin, J. C.	Mabel
Lapierre, C. A.	Minneapolis
Larsen, C. L.	St. Paul
Larson, O. O.	Zumbrota
Larson, M. L.	St. Paul
LaRue, B. F.	Appleton
Laurent, A. A.	Minneapolis
Law, A. A.	Minneapolis
Laws, C. H.	Minneapolis
Leavitt, H. H.	Minneapolis
Leavitt, Frederick E.	St. Paul
Leck, Clifford C.	Austin
Le Clerc, Joseph E.	Le Sueur
Lee, K. J.	Minneapolis
Lee, Thos. G.	Minneapolis
Lee, W. P.	Northfield
Leebens, John H.	Lismore
Leibold, H. H.	Parkers Prairie
Leicht, Oswald	Winona
Leigh, H. L.	Lakefield
Leitch, Arch.	St. Paul
Leland, J. T.	Herman
Leland, M. N.	Minneapolis
Lemieux, Israel	Red Lake Falls
Lemstrom, Jarl	Minneapolis
Le Pak, Francis J.	Duluth
Lerche, Wm.	St. Paul
Lester, C. A.	Alexandria
Leuty, Amos	Morris
Lewis, C. B.	St. Cloud
Lewis, Edwin J.	Sauk Center
Lewis, J. B.	St. Paul
Lewis, J. D.	Minneapolis
Lewis, J. M.	Minneapolis
Lewis, W. W.	St. Paul
Lexa, F. J.	Lonsdale
Lichtenstein, H. M.	Winona
Liedloff, A. G.	Mankato
Lima, Ludwig	Montevideo
Lind, A.	Minneapolis
Lind, C. J.	Minneapolis
Lindberg, A. C.	North Branch
Linde, Herman	Cyrus
Lindsay, W. V.	Winona
Linneman, N. L.	Duluth
Linner, H. P.	Minneapolis
Linton, Laura A.	Rochester
Linton, W. B.	Minneapolis
Litchfield, John T.	Minneapolis
Little, J. W.	Minneapolis
Little, W. J.	St. Paul
Litzenberg, J. C.	Minneapolis
Lloyd, H. J.	Lake Crystal
Loberg, A. E.	Minneapolis
Long, Jesse	Minneapolis
Love, Geo. A.	Preston
Lowe, L. M.	Glyndon
Lowe, Thomas	Pipestone
Lowthian, G. H.	Akeley
Luedtke, G. H.	Fairmont
Lufkin, H. M.	St. Paul
Lum, C. E.	Duluth
Lundholm, E. M.	St. Paul
Luther, Clara M.	Minneapolis
Lynam, F.	Duluth
Lynch, Elizabeth	Winona
Lynch, J. L.	Winona
Lynch, M. J.	Minneapolis
Lyng, John A.	Alexandria
Lynn, J. F.	Waseca

McAuliffe, J. A.	Duluth
McBroom, D. E.	Adams
McCabe, W. F.	Duluth
McCarthy, W. J.	Madelia
McClanahan, E. M.	White Bear
McCloud, C. N.	St. Paul
McCollom, C. A.	Minneapolis
McComb, C. F.	Duluth
McCord, E. W.	St. Paul
McCoy, Mary K.	Duluth
McCuen, J. A.	Duluth
McDaniel, Oriana	Minneapolis
McDavitt, Thos.	St. Paul
McDermott, T. E.	Minneapolis
McDonald, A. L.	Duluth
McDonald, H. N.	Minneapolis
McDonald, I. C.	Minneapolis
McDougald, D. W.	Le Sueur
McDowell, J. P.	St. Paul
McEachran, A.	Minneapolis
McEachern, W. A.	Sandstone
McGaughey, H. F.	Winona
McGiffert, E. N.	Duluth
McGroarty, J. J.	Easton
McGuigan, H. T.	Red Wing
McIntyre, G. W	St. Peter
McKaig, C. B.	Pine Island
McKeon, James	Montgomery
McKeon, Owen	St. Paul
McKeown, E. G.	Edgerton
McKinstry, H. L.	Red Wing
McLaren, Jennette M.	St. Paul
McLaughlin, E. M.	Winona
McLaughlin, J. A.	Minneapolis
McMahon, Chas.	Copperville, Tenn.
McMichael, O. H.	Vernon Center
MacCarty, W. C.	Rochester
Macdonald, A.	Morristown
MacDonald, D. A.	Minneapolis
Macdonald, J. W.	Minneapolis
MacLaren, Archibald	St. Paul
Macnie, J. S.	Minneapolis
Maertz, Wm. F.	New Prague
Magie, W. H.	Duluth
Maguire, M. F.	Minneapolis
Maitland, David P.	Jackson
Maland, C. O.	Minneapolis
Malchow, C. W.	Minneapolis
Malmgren, C. V.	Virginia
Mann, A. T.	Minneapolis
Manson, F. M.	Worthington
Marcley, W. J.	Minneapolis
Marcum, E. H.	Bemidji
Marken, M. H.	Dawson
Markoe, J. C.	St. Paul
Martin, T. R.	Minneapolis
Maschger, A. P.	St. Paul
Matthews, Justus	Rochester
Maurer, E. L.	Brownton
Maxeiner, Stanley R.	Minneapolis
Meckstroth, C. W.	Brandon
May, C. C.	Adrian
May, W. H.	Minneapolis
Mayland, M. L.	Faribault
Maynard, C. W.	Eveleth
Mayo, C. H.	Rochester
Mayo, W. J.	Rochester
Mee, P. H.	Osseo
Mead, Marion A.	Minneapolis
Meade, Charles J.	St. Paul
Meighen, J. W.	Ulen
Meilicke, W. A.	Janesville
Melby, Benedick	Blooming Prairie
Melby, O. F.	Thief River Falls
Merrill, B. J.	Stillwater
Merrill, J. E.	Amboy
Merritt, Geo. F.	St. Peter
Mesker, G. H.	Olivia
Metcalf, J. N.	Monticello
Meyer, E. L.	Minneapolis
Meyerding, E. A.	St. Paul
Miller, A. W.	St. Paul
Miller, C. T.	St. Paul
Miller, Hugo H.	Minneapolis
Miller, Troy S.	Minneapolis
Miller, Victor I.	Mankato
Miller, W. A.	New York Mills
Millspaugh, J. G.	Little Falls
Mintener, J. W.	Minneapolis
Mitchell, Frederick	St. Paul
Mitchell, R. S.	Grand Meadow
Moe, Anton J.	Heron Lake
Moir, Wm. W.	Minneapolis
Moloney, G. R.	Belle Plaine
Monahan, J. A.	Minneapolis
Monahan, R. H.	Intl. Falls
Moore, J. E.	Minneapolis
Moore, W. J.	Wood Lake
More, C. W.	Eveleth
Moorehead, Martha B.	Minneapolis
Morehouse, G. G.	Owatonna
Moren, E.	Minneapolis
Morell, W. N.	Verndale
Mork, B. O.	Worthington
Morley, G. A.	Crookston
Morris, Minor	Hopkins
Morse, John H.	Minneapolis
Morss, Clarence R.	Coleraine
Mortensen, N. G.	St. Paul
Morton, H. McI.	Minneapolis
Mosse, F. R.	Rochester
Moynihan, A. F.	Sauk Center
Moynihan, T. J.	St. Paul
Muerding, W.	Springfield

Muir, Edwin S.............Winona
Muir, J B.................Hallock
Mullin, R. H...........Minneapolis
Munger, L. H.............Winona
Murdock, A. J.........Minneapolis
Murdock, H. G......Taylor's Falls
Murphy, E. F...........St. Paul
Murphy, Ignatius J..........Duluth
Murphy, W. B..........Minneapolis
Murray, D. D..............Duluth
Murray, Wm. R......Minneapolis
Mussey, R. D...........Rochester

Nannestad, J. R........Albert Lea
Nauth, W. W...........Minneiska
Nelson, C. P...........Minneapolis
Nelson, H. E.............Crookston
Nelson, H. S...........Minneapolis
Nelson, J. C.................St. Paul
Nelson, L. A................St. Paul
Nelson, M. S...................Mora
Nelson, N. A..............Dawson
Neumann, C. A.........Lewiston
Neumann, W. H..........Lewiston
Newhart, Horace.....Minneapolis
Newkirk, H. D.........Minneapolis
Nichols, A. E.............St. Paul
Nicholson, Joseph ....Brainerd
Nickerson, B. S............Glencoe
Nickerson, M. L. ......Minneapolis
Nippert, H. T................St. Paul
Nippert, L. A.........Minneapolis
Nissen, Henrik ....Minneapolis
Nootnagel, C. F.......Minneapolis
Norman, J. F............Crookston
Norred, C. H. ....Minneapolis
Noth, H. W............Minneapolis
Norton, H. G..............St. Paul
Novak, Edward E....New Prague
Nye, W. F.............Minneapolis
Nyquist, J. E. ....Cloquet

Oberg, C. M...........Minneapolis
Oberg, Emanuel ......Minneapolis
O'Brien, H. J..............St. Paul
O'Brien, R. P..........Minneapolis
O'Connor, J. V..........St. Paul
O'Donnell, J. E.........Minneapolis
O'Hair, P..................Waverly
O'Hara, J. J..............Janesville
Ohlinger, L. B..The Sanatorium, Cass County
O'Malley, W. P............St. Paul
Ogden, B. H..............St. Paul
Ogden, Emma K............Detroit
Ohage, Justus.............St. Paul
Ohage, Justus, Jr..........St. Paul
Ohnstad, J................McIntosh
Olander, J. E..............St. Paul
Oliver, C. I..............Graceville
Olsen, S. H.................Milaca
Olson, F. A..............St. Paul
Olson, Olaf A..........Minneapolis
Olson, O. H................Erskine
Olson, R. G................Nicollet
Onsgard, C. K.............Rushford
Onsgard, L. K............Houston
Oppegaard, M. O.......Kerkoven
Oredson, O. A...............Duluth
Orton, H. N............Minneapolis
Osborn, Lida ....Mankato
Ostergren, E. W...........St. Paul
Owre, Oscar ....Minneapolis

Palmer, W. L............Albert Lea
Pare, L. T...................Duluth
Parker, E. H...........Minneapolis
Parker, O. W...................,Ely
Parks, Albert H.......Minneapolis
Parrott, B. W..........Long Prairie
Parsons, George E......Elk River
Patton, F. J.................Duluth
Paulson, T. S..................Hills
Payette, C. H...............Duluth
Pease, G. R. .....Redwood Falls
Pederson, R. M........Minneapolis
Pengelly, Edward J.......Hibbing
Penhall, F. W..............Morton
Persons, C. E.............Marshall
Perry, C. G.............St. Paul
Perry, Ralph St. J...............
.... Parker's Prairie
Peters, R. M ....Minneapolis
Peterson, A. C.................Dassel
Peterson, Christian ...Owatonna
Peterson, George E.........Dassel
Peterson, J. R............Willmar
Peterson, V. N............St. Paul
Pettit, C. W...........Minneapolis

Phelan, R. J..........Minneapolis
Phelps, R. M.............Rochester
Phillips, J. G............Northfield
Phillips, J. R..............Northfield
Pilon, Pierre C.........Paynesville
Pinnault, H. A...........St. Joseph
Pine, A. A..................St. Paul
Pineo, W. B............Minneapolis
Piper, M. C................Sanborn
Plankers, A. F..........St. Paul
Platt, J. J..................St. Paul
Plehn, J. F...........Minneapolis
Plondke, F. J..............St. Paul
Plonske, C. J..........Minneapolis
Plummer, H. S..........Rochester
Poehler, F. T...........Minneapolis
Pool, Daniel ....St. Paul
Poppe, Fred H........Minneapolis
Porter, O. M...............Atwater
Portman, William C.......Jackson
Powell, C. B...............Madison
Powers, F. H.............Marshall
Powers, F. W..............Barrett
Pratt, C. C..............Mankato
Pratt, F. J.............Minneapolis
Pritchard, D. B..........Winona
Puffer, F. L.............Bird Island
Putney, George E......Paynesville

Quinby, Thos. F........Minneapolis
Quinn, J. A.................St. Paul
Quist, Henry W.......Minneapolis

Rains, J. M...............Willmar
Ramaley, L. ....St. Paul
Ramsey, W. R..............St. Paul
Rand, M. J...........Sauk Rapids
Randall, A. M................Ashby
Randall, B. M. ....Graceville
Ransom, M. L............Hancock
Ratcliffe, J. J................Aitkin
Rathbun, A. M..................Rice
Reay, G. R....................Hokah
Redd, J. H............Minneapolis
Reed, Chas. A. ....Minneapolis
Rees, S. P..............Minneapolis
Reid, William ....Deer Wood
Reimstad, C. S............Brainerd
Reineke, G. F.............New Ulm
Reiter, H. W..............Shakopee
Rexford, L. A.........Minneapolis
Rice, G. D.................Pipestone
Richards, E. T. F.......St. Paul
Richards, Polk........White Earth
Richardson, W. E.....Heron Lake
Richardson, W. J........Fairmont
Richmond, D. C.........Windom
Ridgway, Alex. ......Clearwater
Ridgway, A. M..........Annandale
Riggs, C. E.................St. Paul
Ringnell, C. J..........Minneapolis
Rishmiller, J. H.... ..Minneapolis
Risjord, J. N.............Fertile
Ritchie, H. P...............St. Paul
Ritchie, Parks ....St. Paul
Roadman, Ira M..........Onamia
Roan, Carl M..........Minneapolis
Robbins, C. P..............Winona
Roberts, Geo. F........Minneapolis
Roberts, L. M...........Little Falls
Roberts, Thos. S.......Minneapolis
Roberts, W. B.........Minneapolis
Robertson, Archibald W..Litchfield
Robertson, H. E.......Minneapolis
Robertson, J. B........Cottonwood
Robertson, J. W..........Litchfield
Robbins, C. P............Winona
Robilliard, W. H..........Faribault
Robinson, J. M.............Duluth
Robinson, L. S. B..........St. Paul
Robitshek, E. C........Minneapolis
Rochford, W. E........Minneapolis
Rodgers, C. L.........Minneapolis
Rodli, O. E.............Albert Lea
Rogers, A. C.............Faribault
Rogers, C. E...........Montevideo
Rogers, F. D.............St. Paul
Rogers, G. M. F............Austin
Rogers, J. T...............St. Paul
Rollins, F. H...........St. Charles
Roseau, Victor.........Maple Lake
Rose, F. M.............. .Faribault
Rosen, Samuel ....Minneapolis
Rosenwald, J. P........Mankato
Rothschild, H. J...........St. Paul
Rothenberg, J. C........Springfield
Rothrock, J. L............St. Paul
Rowe, O. W................Duluth
Rowe, W. H..............St. James

Roy, Philemon ....St. Paul
Rudolf, A. J................Waseca
Rumpf, W. H.............Faribault
Russell, H. R..........Stewartville
Rutherford, W. C........St. Paul
Rutledge, J. W........Minneapolis

St. Dennis, E. F...........Ghent
Sanborn, C. R..............Bemidji
Sanderson, Ed. T........Minneota
Savage, F. J...............St. Paul
Sawyer, H. P..............Goodhue
Schefcik, J. F........Minneapolis
Schjelderup, N. H......Minneapolis
Schlesselman, J. T...Good Thunder
Schlutz, F. W..........Minneapolis
Schmidt, H. A........Westbrook
Schmidt, Karl H. .....Minneapolis
Schmitt, A. F............Mankato
Schneider, H. A...........Jordan
Schneider, J. P.........Green Isle
Schoch, J. L..............New Ulm
Schoch, R. B. J...........St. Paul
Schons, Edward .....Zimmerman
Schottler, G. J........... ..Dexter
Schroeder, Charles H.......Duluth
Schuldt, F. C. ....St. Paul
Schulze, Albert G..........Duluth
Schulze, George ......Minneapolis
Schwartz, A. H............Duluth
Schwyzer, Arnold ....St. Paul
Schwyzer, G. ....Minneapolis
Scofield, C. L...............Benson
Scott, J. W............St. Charles
Searles, Scott ....Lakefield
Seashore, D. E.............Duluth
Seashore, Gilbert ......Minneapolis
Sedgwick, J. P........Minneapolis
Seeley, I. F.............Northfield
Seeley, J. S...............Faribault
Seham, M. ....Minneapolis
Selby, J. H...........Rochester
Senkler, Geo. E...........St. Paul
Senn, E. W.................Slayton
Serkland, J. C.............Rothsay
Sewall, G. M..............Cuyuna
Shaughnessy, M. J........Wabasha
Shelden, W. D.........Minneapolis
Sheppard, Fred..........Hutchinson
Sheppard, P. E.........Hutchinson
Sherman, C. L.............Luverne
Sherper, M. S............St. Paul
Sherping, O. Th.......Fergus Falls
Sherwood, Geo. E..........Kimball
Shimonek, Anton ....St. Paul
Shrader, E. E...........Watertown
Shrader, J. S............Springfield
Shrodes, G. H............Waterville
Simison, C. W...........Hawley
Simpson, J. D..........Minneapolis
Sivertsen, Ivar.........Minneapolis
Skinner, H. O............St. Paul
Slocumb, H. H.........Plainview
Slocumb, J. A............Plainview
Slocumb, Maude S......Minneapolis
Smallwood, Justin ....Worthington
Smersh, Francis M......Owatonna
Smith, Arthur E.......Minneapolis
Smith, B. A...............Biwabik
Smith, C. A............Minneapolis
Smith, C. E. Jr...........St. Paul
Smith, D. Edmund.....Minneapolis
Smith, E. H................Bemidji
Smith, E. V.................Adams
Smith, F. L...............Chatfield
Smith, H. R............Faribault
Smith, H. W............Crookston
Smith, L. G..............Buffalo
Smith, M. B. ....Lake Park
Smith, M. W...........Red Wing
Smith, Norman M.....Minneapolis
Smith, P. A..............Faribault
Sneve, Haldor ....St. Paul
Soderlind, A...... ...Minneapolis
Sogge, L. ....Windom
Sohmer, A. E..............Mankato
Sohlberg, O ....St. Paul
Soper, J. E...............Norwood
Spalding, A. E. ....Luverne
Spratt, C. J.... ....Minneapolis
Spratt, C. N..........Minneapolis
Stacy, Leda ....Rochester
Staples, H. L........ .Minneapolis
Steen, A. H.........Cottage Grove
Steinbach, John ....Winona
Stemsrud, A. A........ ..Dawson
Sterner, O. W........Cambridge
Sterner, E. G. ....St. Paul
Stevens, F. A............Lake Elmo

Stevenson, Robert G	Albert Lea
Stewart, Allan B	Owatonna
Stewart. Alex	Hill City
Stewart, C. A	Duluth
Stewart, D. A	Winona
Stewart, J. Clark	Minneapolis
Stierle, A. Jr	St. Paul
Stinchfield. A. W	Rochester
Stolpestad, H. L	St. Paul
Stone, A. J	Minneapolis
Stone, J. Leslie	Minneapolis
Strachauer, Arthur C	Minneapolis
Strang, D. M	Northfield
Strathern, F. P	St. Peter
Strickler, O. C	New Ulm
Strout, E. S	Minneapolis
Strout, G. E	Winthrop
Stuart, J. H	Minneapolis
Stuhr, H. C	Argyle
Stumm, T. W	St. Paul
Sukeforth, L. A.	Duluth
Sullivan, M	Adrian
Sundt, Mathias	Hanska
Sutton, C. S	St. Cloud
Swanson, Cephas	St. Hilaire
Swartwood, F. A	Waseca
Swedenburg, A. W	Thief River Falls
Swennes, O. S	Wahkon
Sweeney, Arthur	St. Paul
Sweetser. H. B	Minneapolis
Sweitzer, S. E.	Minneapolis
Swennes. O. S	Lawrence
Swenson, Charles	Braham
Sykora, F. J	Brainerd

Taft, J. O	Minneapolis
Talbot, Ada E	Minneapolis
Tanner, A. C	Federal Dam
Taylor, A. C	Duluth
Taylor, C. W	Duluth
Taylor, H. L	St. Paul
Taylor, Rood	Duluth
Taylor. Wm. J	Pipestone
Teisberg, C. B	St. Paul
Tennyson, Falk	Minneapolis
Tennyson. Theodore	Minneapolis
Thabes. J. A	Brainerd
Theissen, W. N	Henderson
Thimsen, N. C	Hayfield
Thomas, D. O	Minneapolis
Thomas, Geo. E	Minneapolis
Thomas, G. H	Minneapolis
Thompson, Albert	St. James
Thordarson. Th	Minneota
Thornby, H. J	Barnesville
Tibbetts, J. I	Wayzata
Tilderquist. D. L	Duluth
Tilton, A. J	Harris
Tinker, C. W	Stewart
Todd. F. C	Minneapolis
Todd, W. E	Albert Lea
Tofte, Josephine B	Pine City
Tomlinson, H. A	St. Peter
Torkelson, P. T	Lyle
Torland, A. O	Minneapolis
Towers, F. E	Minneapolis
Towers, Mary E	Minneapolis
Trace, O. C	Clear Lake
Trutna, T. J	Silver Lake
Tufty, J. M. O	Duluth
Tunstead, Hugh	Minneapolis
Tuohy, E. L	Duluth
Tweedy, G. J	Winona
Tyrrell, C. C	Minneapolis

Ulrich, Henry L	Minneanolis
Ulrich, Mabel S	Minneanolis
Utley, J. D	Spring Valley

Vadheim, Alfred L.	Tyler
Van Deboget, Lewis	Minneapolis
Van Slyke, Charles A	St. Paul
Van Valkenberg, B. F.,	Long Prairie
Valin, H. D	Mankato
Valentine, W. H	Tracy
Vercellini, Joseph	Duluth
Verne, V. E	Moorhead
Vigen, J. G	Fergus Falls
Vinje, Syver	Henning
Vogel, J. P	New Ulm
Von Berg. J. P	Albert Lea
Von Bohland, F. J	Belle Plaine
Voyer, Emile O	Minneapolis
Vrooman, F. E	St. Francis

Wakefield, Kee	Hutchinson
Wakefield. Wm	Lake Benton
Walker, A. E	Duluth
Walker, G. H	Fairfax
Walsh, E. F	St. Paul
Walters, F. R	Moose Lake
Wanous, E. Z	Minneapolis
Warham, Thos. T	Minneapolis
Warner, E. F	St. Paul
Warren, F. S	Faribault
Warren, J. W	Blooming Prairie
Watkins, S. O	Carlton
Watson, C. W	Minneapolis
Watson, J. A	Minneapolis
Watson, John	St. Louis Park
Watson. N. M	Red Lake Falls
Watson, Tolbert	Albany
Wattam, G. S	Warren
Way, O. F	Clairmont
Weeks, L. C	Detroit
Weir, J. D	Beardsley
Weiser, F. R	Windom
Weiser, G. B	New Ulm
Welch, M. C	St. Paul
Wellcome, J. W. B	Sleepy Eye
Wellner, G. C	Red Wing
Wells, E. E	Stillwater
Werner, N. L	Red Wing
Werner, O. S	Lindstrom
Wesbrook, F. F	Minneapolis
Weston, C. G	Minneapolis
Weston, J. B	Duluth
Wethall, A. G	Minneapolis
Weum, T. W	Duluth
Wheat, F. C	Minneapolis
Wheeler, E. C	St. Paul
Whetstone, Mary S	Minneapolis
Whipple, C. D	Minneapolis
Whitacre, J. C	St. Paul
Whitcomb, E. H	St. Paul
White, J. B	Jordan
White. J. S	St. Paul
White. S. M	Minneapolis
Whiting. Arthur D	St. Cloud
Whitney, A. W	St. Paul
Whittemore. J. G.	Donnelly
Whyte, P. D	Hardwick
Wiedow, Henry	Worthington
Wilcox, Archa E	Minneapolis
Wilcox, F. L	Walker
Wilcox, M. Russell	Minneapolis
Wilkinson, J. C	Red Lake Falls
Wilkinson, Stella	Duluth
Will, W. W	Bertha
Williams, A. B	Willmont
Williams, C	St. Paul
Williams, C. W	Minneapolis
Williams, H. L	Minneapolis
Williams, John	Lake Crystal
Williams, Leon A	Slayton
Williams, Robert	Minneapolis
Williams, U. G	Minneapolis
Wilson, L. B.	Rochester
Wilson, W	Northfield
Wilson, W. F	Lake City
Winnick, J. B	St. Paul
Winter, John A	Duluth
Wiseman, R. L	Pine City
Witherstine. H. H	Rochester
Withrow, M. E.	International Falls
Wolner, O. H	Hanover
Wood, Douglas F	Minneapolis
Wood, Harry G	Rochester
Woodard. F. R	Minneapolis
Woodruff, C. W	Chatfield
Woodworth, Elizabeth	Minneapolis
Woodworth. L. F.	Le Sueur Center
Workman, H. M	Tracy
Wright, C. B	Minneapolis
Wright, C. D'a	Minneapolis
Wright, C. O	Luverne
Wright. F. R	Minneapolis
Wright, Swan G	Minneapolis
Wunder, H. E	Duluth

Yoerg, O. W	Minneapolis

Zaun, J. J	St. Paul
Zeien. Thos	North Branch
Zimbeck, R. D	Montevideo

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF MINNESOTA FOR THE MONTH OF JANUARY, 1912

REPORTED FROM 82 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES.	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia
Ada	1,253	1,432	*													
Albert Lea	4,500	6,192	12	2		3									1	
Alexandria	2,681	3,001	3	1			1									
Anoka	3,769	3,972	5			3										
Austin	5,474	6,960	7			1								1	1	
Barnesville	1,326	1,353	1											1		
Bemidji	2,183	5,099	15	4		3							1		3	
Benson	1,525	1,677	1													
Blue Earth	2,900	2,319	3												1	
Brainerd	7,524	8,526	11	3											3	
Breckenridge	1,282	1,840	3													
Canby	1,100	1,528	1													
Cannon Falls	1,239	1,385	0													
Chaska	2,165	2,050	1													
Chatfield	1,426	1,226	2			1										
Cloquet	3,074	7,031	5			1										
Crookston	5,359	7,559	5		1										1	
Detroit	2,060	2,807	3	1												
Duluth	52,968	78,466	67	10	1	8					3		3	1	3	1
East Grand Forks	2,077	2,533	5			1										
Ely	3,572	3,572	5			1										
Eveleth	2,752	7,036	4	1			1							1		
Faribault	7,868	9,001	9			3										
Fairmont	3,440	2,958	0													
Fergus Falls	6,072	6,887	6	1									1		1	
Glencoe	1,788	1,788	1												1	
Granite Falls	1,454	1,454	3													
Hastings	3,811	3,983	6	1					1							
Hutchinson	2,495	2,368	2													
International Falls		1,487	3	1												1
Jordan	1,270	1,151	2												1	
Lake City	3,142	3,142	5	1							1					
Le Sueur	1,937	1,755	0													
Litchfield	2,280	2,333	0													
Little Falls	5,774	6,078	6	1									1		1	
Luverne	2,223	2,540	2			1										
Madison	1,336	1,811	2	1												
Mankato	10,559	10,365	14		1	1							1		4	
Marshall	2,088	2,152	2													
Melrose	2,591	2,591	1													
Minneapolis	202,718	301,408	259	29	10	39	3	3					3	5	12	2
Montgomery	979	1,267	0													
Montevideo	2,146	3,056	4										1		2	
Moorhead	3,730	4,840	8	2		1							1			
Morris	1,934	1,685	2		1											
New Prague	1,228	1,554	1													
New Ulm	5,403	5,648	12	1		1					1			1	2	
Northfield	3,210	3,215	3	1												
Ortonville	1,247	1,774	2													
Owatonna	5,561	5,658	4			2										
Pipestone	2,536	2,475	3											1	1	
Red Lake Falls	1,666	1,666	3													
Red Wing	7,525	9,048	9	3	1	3							1		1	
Redwood Falls	1,661	1,666	2													1
Renville	1,075	1,182	*													
Rochester	6,843	7,844	33		1	6					1				6	
Rushford	1,100	1,011	0													
St. Charles	1,304	1,159	1													
St. Cloud	8,663	10,600	13	1		1									1	
St. James	2,102	2,102	4													
St. Paul	163,632	214,744	188	17	3	26	3				1			11	13	
St. Peter	4,302	4,176	5													
Sauk Centre	2,154	2,154	2	1												
Shakopee	2,046	2,302	2												1	
Sleepy Eye	2,046	2,247	0													
South St. Paul	2,322	4,510	3													
Staples	1,504	2,558	1													
Stillwater	12,318	10,198	7			2									3	
Thief River Falls	1,819	3,174	1		1											
Tower	1,111	1,111	0													
Tracy	1,911	1,826	0													
Two Harbors	3,278	4,990	5	2											1	
Virginia	2,962	10,473	11	1		5								1		
Wabasha	2,622	2,622	*													
Warren	1,276	1,613	5	1												
Waseca	3,103	3,054	4			1					1					
Waterville	1,260	1,273	2													
West St. Paul	1,830	2,660	0													
Willmar	3,409	4,135	6	1										1		
Winona	19,714	18,583	17	2	1	3										
Winthrop	813	1,043	0													
Worthington	2,386	2,385	1													

REPORTED FROM 54 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia
Adrian	1,258	1,112	1													
Aitkin	1,719	1,638	1													
Akeley			1			1										
Appleton	1,184	1,221	1	1												
Belle Plaine	1,121	1,204	1													
Biwabik		1,690	1	1												
Bovey		1,377	0													
Browns Valley	721	1,058	0													
Buffalo	1,040	1,227	2													
Caledonia	1,175	1,372	2			1										
Cass Lake	546	2,011	2													
Chisholm		7,684	9			3										
Coleraine		1,613	*													
Dawson	962	1,318	2			1		1								
Delano	967	1,031	1													
Farmington	733	1,024	1													
Fosston	864	1,055	1													
Frazee	1,000	1.645	0													
Glenwood	1.116	2.161	2			1										
Grand Rapids	1,428	2.239	2			1										
Hibbing	2,481	8.832	8			1								1		
Jackson	1,756	1,907	2	1												
Janesville	1,254	1.173	0													
Kenyon	1,202	1,237	0													
Lake Crystal	1,215	1,038	1													
Long Prairie	1,385	1,250	1													
Madelia	1.272	1.273	0													
Milaca	1,204	1.102	3								1					
Mountain Lake	959	1.081	0													
Nashwauk		2,080	2													
North Mankato	939	1.279	1													
North St. Paul	1,110	1.404	0													
Osakis	917	1.013	1													
Park Rapids	1.313	1,850	2													
Pelican Rapids	1,033	1,019	3	1		2										
Perham	1.182	1,376	1													
Pine City	993	1.258	2	1		1										
Plainview	1.038	1.175	0													
Preston	1,278	1.193	0													
Princeton	1,319	1,555	3													
St. Louis Park	1,325	1,743	0													
Sandstone	1.189	1,818	4	1										2		
Sauk Rapids	1,391	1,745	2													
South Stillwater	1.422	1.343	1													
Springfield	1,511	1.482	3													
Spring Valley	1,770	1,817	1			1										
Wadena	1.520	1,820	1												1	
Wells	2.017	1,755	*													
West Minneapolis	2.250	3.022	3			1										
Wheaton	1.132	1.300	1													
White Bear Lake	1.288	1,505	1			1										
Windom	1.944	1,749	4												1	
Winnebago City	1,816	2.555	3			2										
Zumbrota	1,119	1.138	2													
STATE INSTITUTIONS																
Fergus Falls, Hospital for Insane			8	1												
Rochester, Hospital for Insane			8	2												
St. Peter, Hospital for Insane			7	2		1										
Anoka, Asylum			1	1												
Hastings, Asylum			3												1	
Faribault, School for Deaf																
Faribault, School for Blind																
Faribault, School for Feeble Minded			7	2		4										
Owatonna, School for Dependents																
Stillwater, State Prison																
St. Cloud, State Reformatory																
Red Wing, State Training School																
Minneapolis, Soldiers' Home			5													
OTHER PARTS OF STATE			774	70	10	98	11	14	1	0	7	3	10	26	47	1
Total for state			1745	174	31	237	19	18	2	0	16	3	23	53	114	6

*No report received. Registrar not doing his duty.

162 stillbirths and premature births not included in above totals.

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ABSCESS OF THE LIVER ASSOCIATED WITH OR FOLLOWING SUPPURATIVE APPENDICITIS*

By S. M. Hohf, M. D.
YANKTON, S. D.

Master E. M., age 14, schoolboy. Chronic appendicitis. First attack eight months before coming under observation. It was moderate in its course, confining the patient to bed only two or three days. However, more or less abdominal distress followed and continued after the attack and particularly after slight indiscretion in diet. His last real illness occurred ten days before entering the hospital. This attack confined him to bed five days, when he got up and was about for two days, after which a recurrence set in which prostrated him. Abdominal pain and tenderness at this time was acute, circumscribed and confined to the right iliac fossa, but radiating to the groin and upward to the costal arch. Nausea and vomiting present. Bowels costive. Temp., 103°, pulse, 110. He has had chilly sensations and some tenesmus and distress on micturition.

The patient was removed to the hospital and the abdomen opened. The appendix was buried in a mass of adhesions and extended over the iliac vessels into the pelvis, where an abscess was situated containing about 60 c.c. of foul pus. The appendix was removed and ample drain introduced into the cavity. Convalescence, apparently, was uninterrupted. His temperature dropped at once to 99°, his pulse to 85, and the patient felt well. But this was noted: a sensitiveness persisted on palpation in the liver area to the right, his temperature clung to 99°, and his pulse to 85. He was permitted to return to his home on the seventeenth day following his operation symptomatically well, notwithstanding the findings referred to.

Six weeks following his return home I was hastily called to see him on account of a sudden and severe abdominal pain which had set in. Forty-eight hours preceding he had had two severe chills followed by jaundice. He had lost markedly in weight and strength, was anemic and yellow, mentally sluggish, but answered questions intelligently. Temperature at this time was 105°, pulse 138. His tongue was dry, but clean, abdomen dry, with the right hypochondrium markedly distended. There was no muscular spasm. On the right side, extending upward and forward, under the costal arch, was a very tender mass, seemingly a uniformly enlarged, and swollen liver. The left lobe could not be defined. His mother stated that he seemed very much worse since the chills, and he surely appeared at this time too ill to be transferred to the hospital. It was thought, however, that if under vigorous stimulation his condition later sufficiently improved to warrant it, operation was to be advised, on the tentative diagnosis that we had before us a large subphrenic or a single hepatic abscess which might be accessible for drainage. He steadily failed, however, and died in ten hours.

At autopsy these findings were obtained: Adhesions were extensively formed about the liver, and on separating these it was found that the organ was dark, rough, and in many places broken down with multiple abscesses scattered throughout its substance. Foul, stinking pus was located between the leaves of the mesocolon at the hepatic flexure and the colon firmly attached to the under surface of the liver. Lymph-nodes back of the peritoneum were broken down with pus centers. The mesenteric veins from the lower part of the ascending colon were thrombotic, and the radicles of the portal were closed at many points, with numbers of these blocked areas broken down and containing pus. About the cecum there was little evidence of serious trouble save adhesions from the primary inflammation and those caused by the drain introduced at the operation. The pleural cavity and lungs were not involved. The kidneys were congested, but there was no gross evidence of pus in these organs. The spleen likewise was much engorged while the stomach and pancreas were normal.

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*Read at the annual meeting of the Sioux Valley Medical Association, Sioux Falls, S. D., July 20, 1911.

With these findings before us there was no doubt but that there occurred a direct extension or transmission of the infection of a chronically inflamed appendix by way of the portal system of vessels, together with the lymph-channels, to the liver. Also that direct implantation was manifest by the extension of pus continuity along the cellular tissues between the mesocolon to the under surface of the liver. It also forcibly demonstrates the lateness at which hepatic infection may occur, or the very tardy development of serious and fatal symptoms following the earlier manifestations of liver invasion, and at a time when, ordinarily at least, all reasons for suspecting a portal phlebitis and lymphangitis have passed. It should lead us to consider with a great deal of respect the comparatively small area on the right side of the body extending from the cecal to the costal region, because it is within these limits that the major portion of the most serious secondary complications relative to suppurative appendicitis takes place. Free communication exists between the ileocecal and portal vessels, which drain the diseased appendix in close proximity, therefore, anatomically, reason and argument is supported in the assertion that pylephlebitis or portal thrombosis is not an infrequent occurrence in delayed or neglected cases of appendicitis. On this subject Murphy says: "Pylephlebitis is not an uncommon occurrence in late or unoperated cases of appendicitis. * * * The infection travels in the ileocecal vein to the portal; there multiple thrombi and abscesses form, the infection extends to the spleen and liver; multiple foci of suppuration appear in both. Metastatic abscesses appear in the lungs, kidneys, etc. All of these cases have recurrent chills and fever, tympany, often diarrhea, night-sweats, emaciation, etc., and terminate fatally. Pylephlebitis occurs more frequently than is generally supposed."

It is our belief that milder forms of infection of these vessels takes place with marked frequency in this class of cases, in which the diagnosis is rarely made and that the patient makes a spontaneous recovery therefrom, as is seen in the thrombophlebitis of the femoral following many pelvic infections from which the patient makes a spontaneous and complete recovery.

Infections and metastasis by way of the lymph-channels is second in importance only to that of pylephlebitis. The region of the ileocecum is richly supplied with lymphoid tissue and the activity of absorption from this point can be demonstrated in many cases of appendicitis at a certain period by the enlargement of the lymph-nodes of the mesentery. Indeed, in many instances the enlarged glands can be palpated through a thin abdominal wall at a considerable period after the acute inflammatory process in the appendix has subsided. Reference need here be made only to an identical condition observed in the groin and axilla after infections of the extremities; also in the lymph-nodes of the neck following many different infections of the pharyngeal group. This process, however, in the mesenteric glands may terminate in suppuration followed by metastasis to other regions and develop there the secondary peritoneal or retroperitoneal abscesses, hard to differentiate, and an extension thence to the subphrenic space and the pleura.

It is said that infection of the liver takes place mostly in young adults and that children below 15 are almost exempt from portal transmission. If this is true there must be an anatomic reason. However, we believe that this rarity, if it exists, is only apparent, and that, when our statistics on appendicitis in children are increased, and the operations therefor, together with the research and investigation which these operations imply are increased, it may be found that lymphatic involvement and phlebitis in children is not so very rare.

The following report of a little patient that has recently come under observation might be recognized as typical of the condition and of interest.

Minnie K., aged 7, school-girl, had always been well until one week preceding her arrival at the hospital when she was taken suddenly ill with severe abdominal pain during the night while asleep. She vomited, which afforded her considerable relief. Abdominal tenderness followed and continued, becoming localized in the right groin. When brought in, the right leg was acutely flexed, and attempts to extend the limb would cause the patient to cry out with pain, which seemed to involve the whole right side of the abdomen. The temperature at this time was 103°, pulse, 130. She was slightly jaundiced, not marked, but evident especially in the sclera. When put to sleep the leg relaxed, muscular spasms relaxed, and a fairly large, firm mass could be outlined in the right iliac fossa. By incision the abdominal wall was found edematous and infiltrated, and a large abscess immediately entered beneath the peritoneum. The appendix was readily removed and drainage established. The temperature dropped immediately to 100°, and the pulse to 90. But on the third day following both the temperature and the pulse began to climb upward. Drainage was free and uninterrupted. The abdominal sensitiveness which had not entirely disappeared now became more acute and enlargement of the right liver area was becoming manifest associated with marked tenderness on the lightest palpation. Indeed, the respiratory movements were suppressed because of the subcostal pain. We were in doubt concerning the left lobe. The nurse thought that the child had chilly sensations and the temperature now made irregular excursions, but was high. It was plainly evident that the little patient was losing ground and that some effort must be made to afford relief. Having in mind a single hepatic or a subphrenic abscess that might be drained, an incision was made in the right upper rectus. The liver appeared to be pushed downward and forward, the colon was attached to the under surface as well as to the gall-bladder and ducts, and numerous fine adhesions appeared to extend over the entire surface of the organ. Suspecting a subphrenic abscess by the displacement a trocar was introduced through the eighth interspace at the axillary line and purulent fluid withdrawn. The patient's condition was becoming desperate at this stage, and further exploration was prohibited. The incision was rapidly closed and a stab made in the subphrenic space, using the trocar as guide, which gave exit to a large quantity of pus. The patient hovered between life and death for several days, but very slowly made a satisfactory recovery. She became intensely jaundiced twenty-four hours following the operation, which likewise gradually subsided as convalescence became established.

There was no doubt in our minds but that this large abscess resulted either from direct transmission through the lymphatics or by an extension of the infection by the side of the colon, but the question arose, was the jaundice which later became pronounced due to the mechanical occlusion of the common duct by the adhesions which subsequently relaxed or disappeared, or were we dealing from the beginning with a genuine invasion of the liver following the suppurating appendix?

In the diagnosis of vascular and lymphatic extension leading to liver invasion subsequent to appendicitis many difficulties may arise clouding positive differentiation. However, if proper consideration is given to the importance of obtaining a clear history with reference to appendicitis, and bearing in mind the frequency of the disease and the variations of any particular type, close observation should be given to the case presenting marked sensitiveness and enlargement of the liver associated with jaundice, rapid emaciation, irregular but high temperature, and a continuation of the usual evidences of septicemia, following closely or remotely upon an attack of suppurative appendicitis. Typhoid fever may be closely resembled in the less pronounced types and might mislead in the diagnosis, but the absence of the Widal and the discrepancy in the pulse-rate from the onset should prevent mistakes. General tuberculosis, more especially the miliary type, may be simulated. The local findings, however, are less pronounced, eye tubercles may be observed and lastly hypodermic or conjunctival tests of tuberculin may be employed. In malaria the plasmodium is said to be absent in less than one per cent, and quinine is immediately beneficial. Emphasis should be placed on the hepatic pain and tenderness always present in secondary liver invasion and we know of no condition involving the organ which would create a stronger suspicion of infection than these two phases of the disease. These, taken in conjunction with enlargement, marked emaciation and anemia, rapid pulse, irregular but high temperature, and more or less jaundice, create a clinical picture almost positive.

The treatment of this condition can best be summed up in one word, prevention,—preventing the spread of the infection beyond its primary seat by early intervention. Many have not yet learned the error of delay in adopting prompt operative measures, neither do we all seem to realize the importance of the weight of evidence presented in numbers in the experience of active and observing men whose instructive conclusions in regard to the treatment of appendicitis, in all its phases, ought not to be ignored. We find, not infrequently, even at this late date men in other respects capable and proficient who are making attempts at the false cure of appendicitis by other than surgical means. Just what the modus operandi must be of the methods employed or the mental workings of the man who applies them is hard to conceive. But the fact remains that many cases come to the surgeon with abdomens filled with pus due, in many instances, to the treatment carried on by the medical attendant and most valuable time lost to the patient by this process. As a result we record a death now and then, attributable to appendicitis or its sequelæ, where there should be no deaths, due we repeat, to the procrastinating delay of the doctor in authority. Moreover we believe that 100 per cent of abscesses of the liver secondary to appendicitis are a result of suppuration of the primary disease and that procrastination on the part of the physician or the surgeon is scant evidence of that conservatism which we so highly prize in surgery.

MULTIPLE MYELOMA*

By T. W. Stumm, M. D.

ST. PAUL

The term multiple myeloma refers to a growth occurring in the bone-marrow, especially in the sternum, ribs, vertebræ, and, less frequently, in the skull and some other bones. It is characterized by cells that are very similar to certain normal cells in the bone-marrow, and the gradual gradation of tumor cells into the normal marrow cells; by the fact that metastasis is not present, at least not as in ordinary malignant tumors, if at all, though it may involve the soft parts by continuity of growth; and, lastly, by the fact that the growths are multiple, as the term implies, and probably occur as such from the very beginning.

The condition is rare, though in searching through the literature one finds about fifty case-reports. There is not an exact uniformity in the descriptions, however, and doubtless some of the cases that have been described under this head do not really belong to the myeloma class. In 1907, Pernim collected all of the reported cases, forty, and came to the conclusion that not more than twenty of the reports were, strictly, cases of myeloma. In 1873, Rustitzky described the first case very carefully under the head of myeloma multiplex. During the next two or three years, after attention was once directed to the condition, several typical cases were reported. While one might think the similarity was so close that this term would have been adhered to in all the cases afterwards described, it has not been so, and individual pathologists have used such terms as sarcoma multiplex ostium, pseudoleukemia myelogenes, osteomyelitis maligna, plasmoma malignum, ostitis sarcomatosa, erythroblastoma, endothelioma intravasculare, lymphodema ossium, myelosarcoma, lymphosarcoma multiplex ossium.

The descriptions of the individual cells in these various reports are not such that it can be said definitely just which ones belong to the same class, though in not a few of the reports, the descriptions of the individual cells are practically the same. Menne, in 1906, went into a very careful analysis of the case-reports and tried to select the typical cases of myeloma from heterogeneous tumors of the bone that had been reported as myeloma. The cases are not easily recognized, clinically, and doubtless may have escaped detection. Middle-aged men are usually affected, though there is a report of a very typical case in a man of seventy-two. Women are not exempt from the condition.

In the history, the date of the onset is usually indefinite, as will be noticed from the histories of the case-reports here. Pain in the limbs and a general feeling of lassitude are probably the most frequent early complaints; these in the beginning are not constant and may disappear altogether for a time, to reappear with increased severity and duration. Sometimes the remissions will last for months, the patient will gain weight, and both he and the physician will be inclined to think that the patient is on the road to recovery, but relapses are as sure to come here as in pernicious anemia. As the disease progresses, not only the limbs, but the back, arms, chest, in fact nearly the whole body becomes painful, especially to pressure. Spontaneous fractures are not uncommon, and before the end, which is usually by exhaustion, the patients are bed-ridden, having probably kept up and about for months, possibly a year, by the aid of a stick or crutches before taking entirely to the bed. In a good many of the cases tumor-masses of varying size are detected in the sternum, though external protuberances are frequently not present at all, and the case goes to autopsy with no external signs of a tumor.

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One fairly constant pathological finding is in the urine, in which occurs a substance first discovered by Bence-Jones, and which has since been known as the *Bence-Jones body*. It occurs frequently, though it is not constant, and when found is not pathognomonic of myeloma, though its presence speaks much in favor of it. This substance was first considered an albuminose, but the work of Magnus-Levy and Lindelmann has excluded it from this group and put it in that of native proteins. It is not known just what the substance is, hence the name Bence-Jones body. This peculiar body occurs in varying amounts, from one to seven per cent. It is precipitated by nitric acid, or sodium chloride, and acetic acid, the latter reaction only occurring when the urine is heated to 50 or 60 degrees C. The precipitate is a peculiar milky, yellowish-white material that disappears by further heating, leaving a perfectly clear solution; on cooling, the precipitate reappears. When heated, the precipitated material has a tendency to stick to the sides of the tube. Under the microscope it is amorphous.

Pathologically the gross appearance of the bones is rather characteristic and constant, though there have been cases of the carcinoma that were, from the gross appearance, thought to be myeloma. The sternum, ribs and vertebræ are brittle and can be easily cut with a knife. The outer bony shell can frequently be crushed between the fingers, and in places the whole bony structure may be absorbed, though the periosteum is not broken through. In removing the bones they are easily broken and old, spontaneous fractures are frequently found. On cut sections the surface is gray, yellowish-gray, or, more frequently, reddish-gray in color. Large areas may show, or the surface may be mottled with areas varying in size from a pea to a silver dime. The trabeculæ are more or less absorbed, according to the progress of the disease, and in their place is a fine, delicate, supporting connective tissue as seen under the microscope.

The tumor cells proper are usually thick set and make up the whole tumor-mass, with the exception of the small amount of supporting stroma. The cells are very similar in character in the inner part of the mass, but at the circumference the gradation into the normal bone-marrow cells is very gradual, and one cannot see just where the tumor ends and the normal bone-marrow begins. Very thin-walled vessels, composed of only an endothelial layer, are present to a greater or less degree. The individual cells are seldom perfectly round, but polygonal, due to pressure; the diameter varies, but is usually about 1-2000 inch. In six cases studied carefully by Christian under identical hardening and staining conditions, there was a remarkable uniformity in the cellular findings. There is usually one large, eccentrically-placed nucleus, though there may be two or three; a nucleolus is frequently present. Small, dark, staining bodies are often seen; these are supposedly centrosomes. The protoplasm is homogeneous and has a ground-glass appearance, or shows very fine basophilic granules. There has been a single report only in which neutrophilic granules were present.

Christian in summing up his findings says: "A histological study of six cases of myeloma shows a striking similarity of cell structure with differences of minor degree. The common characteristics of the cells are a finely granular, slightly basophilic cytoplasm, an eccentrically placed nucleus, a nucleolus, centrosomes, a nuclear membrane, and a tendency to mural arrangement of the chromatin. With these characteristics there is a greater resemblance of the tumor cells to bone-marrow plasma cells than to myelocytes. In most of the cases reported by other observers the cells show these characteristics, and these tumors form a group within which the cells of individual cases show no greater variation than occurs in other tumor groups."

The exact nature of the cells has been a matter of much study and no small amount of controversy. They are probably developed from some normal cell in the bone-marrow, whether this be a bone-marrow plasma cell, a myelocyte, or from an erythroblast. The latter two sources, however, seem to have fewer supporters, though Sternberg found neutrophylic granules in one case, and Ribbert thought the cells in his specimen were erythroblastic in nature. This latter contention has been especially strongly controverted; most pathologists consider them as plasma cells, though it is just possible that while the origin is from normal cells in the bone-marrow, the same cell multiplication may not have occurred in every instance, and some may originate from plasma cells, some as premyelocytes, and possibly, though it is not probable, some from erythroblasts.

In this short outline of the condition, I have only attempted to give a general idea of it, since in such a paper it is not possible to go into the discussions that have arisen over many things connected with the etiology and other less important factors.

The case reports that follow are both typical and present findings clinically and pathologically in accordance.

Case 1.—A. P., aged 58; single; farmer; German. August 8, 1906.

Present Trouble: Began in August, 1905, with a feeling of weakness in the legs. At first this came on after a hard day's work, but soon increased in severity so that he could scarcely walk. The legs were now stiff (spastic) as well as weak. This condition was so marked he thought the legs were becoming paralyzed. There was slight pain, starting in the small of the back and radiating down the legs along the course of the sciatic. He had no other complaint whatever. After two or three months the condition improved and he was able to work on the farm, but could not perform full duty during the winter. In the spring of 1906 the condition became worse, increasing very gradually in severity. On August 8, he entered the City and County Hospital in St. Paul. He could now walk around a little by supporting himself by the bed, on a chair, or on a cane. He complains of pain in the small of his back radiating down the thighs and legs. When lying on his back he rests very comfortably. He can eat fairly well; has some cough, but raises very little. On two or three occasions lately he has had distinct chills. He has lost some weight but does not know how much.

Past Illness: Has formerly had rheumatism. He denies all other diseases.

Family History: Father died of old age, mother died of tuberculosis.

Habits: Uses tobacco and alcohol moderately.

Examination: Patient is an old man, well developed, rather poorly nourished, lying supinely in bed. He is apparently in no pain when quiet, but when attempting to turn over or sit up he cries out with pain in his back. He speaks English brokenly and the history can be secured in detail only by speaking German to him.

Head: Scalp, negative; eyes, blue, pupils of moderate size, react to light and accommodation; nose and ears negative; mouth, lips thin and pale, teeth in fair state of preservation, tongue thin and pointed, clean; tonsils and pharynx show nothing abnormal.

Neck: Long and slim; no palpable glands.

Chest: Shows a peculiar flaring shape, being thick anteroposteriorly and considerably larger below than above. When he breathes deeply he complains of a sticking pain in the back. Expansion poor; no excursion to be made out. Percussion is hyperresonant all over. Palpation, with only very moderate pressure on the lower sides of the chest, causes him to cry out with pain, which he locates in the dorsal region. This is more marked on the left side. Auscultation reveals a prolonged expiration. Posteriorly, especially on the right side, one hears fine râles, inspiratory and expiratory. Over the lower part a fine to-and-fro rub is heard. When one taps along the vertebral column he complains of pain in the lower dorsal region. He is persuaded, with some difficulty, to sit up. This he can do only by hanging the feet over the side of the bed and then holding onto the bed with the hands. He holds himself very rigid and moves slowly and cautiously. When asked to walk he gets up very slowly, the whole body being rigid, and slides the feet along in a very spastic manner.

Heart: Dullness small, tones weak but clear; the radial pulse is small, but regular; the arteries are not especially hard.

Abdomen: Not distended, tympanitic, not tender; liver dullness above at seventh rib, not palpable below; spleen not palpable.

Extremities: Upper are normal; lower are held rigid. One can straighten the legs out, but he, by preference, holds them flexed. When they are straightened out he complains of pain along the posterior part of the thigh and in his back.

Nervous System: Knee-jerk much exaggerated; the feet are held very spastic, though no clonus is elicited; no Babinsky; touch, pain, and muscular senses are normal.

Urine: October 8, 1906—Acid, s. g. 1020; albumin, 0; sugar, 0; oxalates present. October 23, 1906—Acid, s. g. 1023; albumin, 0; some epithelial cells present.

Note: During the patient's stay in the hospital he was in bed nearly all the time. Now and then he could sit up for an hour or two and could sometimes walk around the yard, but always with much difficulty. He looked sick all the time and gradually lost weight from the time he came until he died. He said all the time he was gradually weaker. There was no change in the findings, except that he became more rigid, and the lower extremities were more spastic. A good part of the time his temperature was 1° or 2° above normal.

On January 24, 1907, a red, inflammatory area appeared under the left eye, covering the cheek, which was diagnosed as erysipelatous. On the 30th the redness was gone, but the patient became weaker and weaker until he died.

The clinical diagnosis was made of: 1, Pulmonary emphysema; 2, adhesive pleuritis on both sides; 3, pressure on the cord, probably due to caries of the vertebræ; the pleuritis and vertebral condition both probably tuberculous.

Autopsy was held January 30, 1907.

General Finding: The body is that of a well-developed, poorly-nourished, old man. Externally there are no special marks or scars. Postmortem rigidity fairly well marked; postmortem lividity moderate on posterior part of the body.

Head: Scalp negative; ears, negative; eyes, the left pupil is slightly the larger, right is of moderate size; nose negative.

Mouth: Lips thin and pale, gums pale and firm, slightly ulcerated where they join the teeth; teeth fairly well preserved.

Neck: Long and slim, otherwise negative.

Glandular System: There are no palpable superficial glands.

Abdominal Cavity: Musculature and fat greatly reduced; diaphragm on right side reaches to the fourth interspace, left same; the lower border of the liver reaches the costal edge; the lower border of the stomach is two fingers' breadth above the level of the umbilicus; the great omentum contains practically no fat, and is very thin; the transverse colon is U-shaped and reaches nearly to the symphysis pubis; the appendix is free, and lies above the brim of the pelvis; the intestines are only moderately distended; the peritoneal cavity is dry, lining smooth and glistening.

Tongue: Is dry, and covered with a whitish dry coat, is firm; on section the musculature is red. Tonsils small and fibrous.

Thyroid Gland: Is apparently normal; the mucous membrane of the esophagus is pale and smooth; epiglottis is normal.

Chest: In removing the sternum from below upward great friability is observed, it having broken in several pieces; when one presses it between the thumb and fingers it crushes and crackles like an eggshell, and in any part of it one can easily indent it with the pressure of the thumb.

Pleural Cavity: The lungs meet in the median line, and for a distance of 6 c.m.; both pleural cavities are obliterated by firm, fibrous adhesions, which can be torn only with great difficulty.

Pericardial Cavity: Perfectly smooth, and contains a few c.c. of clear fluid.

The left lung is large, the surface is bloody, and is covered with many fibrous tags; the interlobar fissure is entirely obliterated; externally the light, pinkish, lung-tissue shines through the fibrous adhesions, in other places the lung-tissue is entirely covered with adhesions; the lung crepitates throughout, less in the lower posterior part; on section the lung-tissue is light in color, almost dry, and perfectly smooth; around the large bronchi are some large anthricotic glands. The right lung externally is similar to the left in the upper and middle lobes, the lower is much darker, and firmer in consistency; the posterior part of the upper lobe and a large part of the lower lobe do not crepitate; on section the lower lobe has a mottled appearance, whitish and bluish, the surface is smooth and moist; some red, bloody, frothy fluid can be squeezed from the bronchi; the other portions are similar to the other lung.

The Heart: Is a little larger than the owner's fist; the apex is made up entirely of the left ventricle; the mitral orifice admits two fingers snugly; the tricuspid admits four finger tips; the right auricle is filled with a large goosefat clot; the aortic valves are competent to the water test; the left ventricle is firm and solid, and contains a goosefat clot; the right ventricle is empty; the musculature of the right ventricle is of normal thickness and firm, the endocardium is smooth; the tricuspid valves show no abnormal changes; the endocardium of the right auricle is normal, the musculature of the left ventricle is slightly thickened and firm; the endocardium of the left heart is normal; the aortic and pulmonary semilunar valves are normal; the beginning of the arch of the aorta is smooth.

Kidneys: Are of the same size, about normal, smooth and purplish in color, firm in consistency, but with normal resistance; the glomeruli show plainly; the medulla and cortex show normal relation in thickness; the capsules strip with slight difficulty, tearing in places; the surface beneath is slightly granular; one small subserous cyst as large as a pea is present, filled with clear, thin fluid; the kidneys are similar on section.

Liver: About normal in size, dark, and smooth; gall ducts are patent; the bladder is distended with moderately thick bile; the liver cuts with normal resistance, on cut section it is dark and smooth, the markings fairly distinct.

Spleen: Small, of moderate consistency, and pale in color; on section is reddish, the markings clearly seen; rather dry.

In the mesentery are a number of small, yellowish, irregular, stone-hard masses, varying in size from a small shot to a large pea. The peritoneum is perfectly smooth. A section made into the intestine at the junction of the ileum and colon shows normal mucous membrane. The stomach is negative.

Ribs: Are very soft and friable, the outer part is smooth; one can crush them between the fingers with only slight pressure, causing the outer thin covering to crackle like the shell of an egg; the inner part and the marrow are red, pulpy, and granular; the sternum is very similar in appearance to the ribs.

The bones of the vertebral column show the same friable condition as the ribs and sternum, especially in the lower dorsal and lumbar regions; one can with slight pressure force the fingers through the friable crust and into the vertebral canal. The clavicles are firm and externally appear normal. A section about eight inches in length taken from the middle of the femur shows a normal-appearing, solid, bony tissue, but the marrow is quite red in appearance, though of normal consistency. A section of the vertebral column, consisting of the lower dorsal and lumbar vertebræ, is taken out without difficulty. One can cut with a knife or saw through it much like rotten, worm-eaten wood. On section the thin outer crust covering is seen. Inside this the whole section down to the canal is soft, finely granular, spongy, and reddish in color. The intervertebral cartilage is reddish and jelly-like. The spinal cord is easily separated and the membranes show no appreciable change. The bony tissue surrounding the canal is not broken down.

Skull: Cuts with normal resistance; is thin, though apparently normal.

Brain: Weight 1360 gm.; the pia-arachnoid is here and there slightly thickened, especially between the convolutions; this is shown as a slightly yellowish-white, fibrous deposit; the upper and lateral portions contain most of the deposit; on section the brain shows nothing abnormal.

Microscopic Examination: Specimens from the pathological portions show a thickset cellular tissue with very little connective stroma; the tumor cells are about 15 micromillimeters in diameter; the nucleus stains deeply, and is excentric; frequently there is more than one nucleus; some of the cells are in a state of division; a nucleolus is present; the cell body stains reddish, though some cells have a tendency to take the basic stain throughout; there are no granules, though the protoplasm is not quite clear and homogeneous; in some areas the tumor cells and the bone-marrow cells are intimately mixed; the tissue is rich in thin-walled blood-vessels; the polygonal outline of a part of the cells is probably due to pressure.

CASE 2.—M. N., aged 46; laborer; Finlander; married. July 3, 1911.

Diagnosis: Multiple myeloma; pulmonary emphysema.

Present Trouble: Began early in the spring of 1910. Up to this time the patient had always been a perfectly well, strong, laboring man, weighing 200 pounds. He first began to complain of a pain in the right limb, extending from the hip downward, most marked in the region of the sciatic nerve. This was not constant, nor very severe, in the beginning, but after two or three months it became severe enough to make him limp. About that time he began to complain of an aching pain in the small of the back. During the summer the condition got better, but in the fall it came on again with increased severity, and now extended to his right arm and the right side of the chest, with a quite constant severe pain on the left side just above the scapula. Early in the fall the condition was so bad that the patient had to remain in bed practically all the time. He lost a great deal in weight and was quite miserable. His appetite was poor and he vomited nearly all the solid food that was given him. After two or three months he began to improve and gained materially in weight, feeling very much better in every way. Early in the spring of 1911 he began to grow worse again and became more miserable than ever. He came in on the train this morning after having ridden all night; he says the jolting of the train caused him so much pain that he will never return unless he feels much better.

Past Illness: None.

Family History: Good.

Examination: Reveals a well-developed, poorly-nourished foreigner who speaks English poorly and gives his history through an interpreter; he is lying in bed, though with great exertion and much pain he is able to raise himself up in a sitting posture, and can even get out of bed. When he tries to sit up the muscles of the body are all contracted and tense. When he gets out of bed he moves very slowly and cautiously, and when standing on his feet the muscles of the body and limbs are tense and the feet held far apart; with great difficulty he can walk a little, with the body bent forward, and the legs held spastic.

Head: Scalp negative; eyes, ears and nose negative.

Mouth: The lips are dry, and slightly parched; the gums are soft, pale, spongy, and bleed easily; the teeth are in a poor state of preservation; the tongue is dry and covered with a brownish coating; tonsils and pharynx negative.

Neck: In the region of the thyroid, on the left side, is a fairly firm nodular mass about the size of a hen's egg; this does not pulsate and is not painful.

Chest: Full, thick anterioposteriorly, expansion poor, excursion limited. When one makes gentle pressure over the ribs, sternum, or vertebral column the patient cries out with pain; over the clavicle, or on the arms, such is not the case. Even gentle percussion of the chest causes much pain. The lungs are hyperresonant throughout, and expiration is prolonged.

Heart: Negative.

Abdomen: Slightly prominent, not tender, and tympanitic; abdominal ostia are closed; rectal examination is negative.

Glandular System: Negative, except the prominence in the neck, in the left of, or slightly to the left of, the thyroid.

Nervous System: Sensation to touch and pain normal, reflexes normal.

Blood Examination: *Hgb. 40 per cent. (Fl.)*; reds 1,920,000; whites, 11,000. Microscopic examination: Reds, negative; of the 11,000 whites, 40 per cent. are large mononuclears without granules.

Urine: Voided specimen: color, light amber; appearance, clear; sediment very slight; sp. gr. 1010; reaction acid. Microscopic examination shows a few epithelial cells, an occasional white cell, a few granular casts, and a little mucus. Chemical examination reveals a beautiful, well-marked reaction for the Bence-Jones body.

Note: July 6th: The patient has been fairly quiet since he came into the hospital until today, when he became very restless, complaining of much pain in the hips; he has been sitting up a little but does not eat very well. July 8th: The patient is not doing well at all; he complains of a great deal of pain this morning. The pulse became very weak during the night and was counted with difficulty; he was restless and is now breathing hard. His pain is so great that morphia is administered. July 10th: Patient still very restless and uncomfortable; he has become so noisy that he was ordered taken to the ground floor. His bowels are moving involuntarily and quite frequently. July 24th: The patient is growing weaker and becoming very much emaciated; he takes very little food; has involuntary bowel movements; is listless. It has been necessary to keep him quiet with hypodermics of morphia until today. July 26th: The patient has gradually grown weaker until this morning, when he died.

When the patient came into the hospital he had a temperature of 100.4°, and his pulse was 96. His temperature has varied from 99° to 103°, and his pulse from 86 to 140 since he was under observation.

Autopsy: July 27, 1911.

General Finding: The body is that of a much emaciated male, past middle age; postmortem rigidity slight; lividity fairly well marked posteriorly. In the lower sacral region there is a decubitus as large as the palm of the hand. Subcutaneous fat almost gone.

Head: Skull, negative; eyes and ears negative; tongue is dry and covered with a brownish fur.

Chest: Subcutaneous fat almost disappeared; musculature of the chest very thin; when one attempts to cut the sternum it breaks very easily; longitudinal section of this bone shows rather marked absorption of the bony structure; in some places the absorption reaches almost to the outer edge of the bone. The marrow and material within is mottled, showing a reddish-gray material, varying in size from a pea to several centimeters in length. The consistency is fairly firm and in some places is still connected with the bony shell; when the edge of a knife is drawn across the surface, parts of it grate, while other parts are smooth and homogeneous. In places the outer bony shell separates from the material within, while in other places the attachment is more or less firm. The outer bone is so thin that it breaks easily with the point of the knife.

Pleural Cavity: The pleura, both visceral and parietal layers, smooth; the left lung is smooth, large, dry, and light grayish in color in front; posteriorly, it is a little more firm and the color is darker; the tissue feels feathery, especially above and in front. On section the surface of the lower lobe is smooth, moist, and reddish-brown in color; considerable liquid exudes from the surface on pressure; section of the upper lobe shows a smooth, dry, pinkish-gray surface. In the right lung, the same description applies throughout as to the left; in the left pleural cavity, well up in the apex close to the vertebral column, is a mass larger than a hen's egg, firmly attached at its base to the first, second, and third ribs, and to their corresponding vertebræ. The surface of this mass is smooth and decidedly nodular, reddish-gray in color; the consistency is firm, though not cartilaginous.

Heart and Pericardial Cavity: Both the parietal and visceral layers are smooth; the heart is about as large as the owner's fist, firmly contracted; on section the musculature is brownish-red; the endocardium of the left ventricle is everywhere smooth; the aortic cusps are smooth and thin; the beginning of the aorta shows a few yellowish non-elevated spots and one or two smooth plaques; the mitral orifice admits the tips of three fingers; the leaflets are perfectly smooth. The endocardium of the left auricle is grayish in color; the right ventricle is large in comparison to the left; the walls are decidedly thin and less firm in consistency than those of the left; the lower part of the cavity reaches well down to the apex, of which it forms a part. The tricuspid orifice admits three fingers; endocardium of both auricle and ventricle, smooth.

Peritoneal Cavity: The great omentum is practically absorbed; both the parietal and visceral layers are smooth. There are a few adhesions between the omentum and the lower edge of the liver; the liver reaches down to the costal edge. The diaphragm on the right side reaches to the sixth rib; on the left side to the sixth interspace. The transverse colon and duodenum are rather firmly attached to the under surface of the liver and gall-bladder by firm, fibrous adhesions.

Spleen: Is rather firmly attached by some old, fibrous adhesions; it is only slightly enlarged; the surface is dry, wrinkled, and grayish-purple in color; the consistency is about normal; on section the surface is smooth, moist, reddish, and shows the trabeculæ plainly.

Liver: Is almost normal in size and average consistency, smooth and decidedly yellowish-brown in color. The gall-bladder extends down about two fingers' breadth below the edge of the liver. On section the liver surface is moist; the lobular markings are very distinct, the central veins being surrounded by large yellowish areas. The gall-bladder is moderately distended with thin yellowish bile; the mucosa is thin and smooth.

Left Kidney: Is large and smooth; the external surface is dry and purplish in color; the surface on section is moist; the relation of the medulla to the pyramids is about normal; the glomerular markings show up fairly distinct; the surface is decidedly gray; the capsule strips readily, and leaves a mottled yellowish-purple surface beneath. The right kidney is a little smaller than its fellow, otherwise the same description applies.

Stomach: Is about normal in size and position; the mucosa is dark and decidedly smooth.

Pancreas: Is of normal consistency and on cross section there are no changes to be seen.

Prostate: Is small, of normal consistency, and smooth.

On carefully cutting the musculature away from the ribs, with gentle manipulation the ribs fracture in some places; the body of the ribs is so soft and friable that the surface is cut away with a shears without the least difficulty. The bony structure of the rib is no thicker than writing paper; within this bony shell is a mottled, reddish-gray material in which are fine bony trabeculæ; in places a soft gelatinous material entirely fills the space, in other parts the consistency is firmer, and the gray spots are less evident. On the inner surface of the 7th rib, about three and a half inches from the cartilaginous attachment is a firm protuberance on the pleural side about an inch and a quarter long, covering the width of the rib, and about half an inch high. The consistency of the protuberance is decidedly soft and crackles like an egg shell. On the second and fifth ribs are similar enlargements, though a little smaller in size.

In sawing the vertebral column in the upper cervical region, the consistency of the bone is about that of worm-eaten wood. The bodies of the vertebræ, when removed, show on cross section a lamella of bone externally, while the inner part is composed of reddish-gray masses.

The Cranium cuts easily with a saw; on cross section one notices a decided layer of reddish-gray, granular material; this is more marked laterally and in front; in the upper part in the frontal bone is an area as large as a silver half-dime, non-elevated, slightly rough over the surface and reddish in color; this extends through the whole thickness of the skull and spreads out on the inner side; the lesser trochanter of the right femur shows some of the same reddish degeneration.

The Thyroid: Is smooth and firm and the left lobe is of about normal size, slightly compressed, though otherwise it appears normal. The right lobe is nodular and about three inches long and one and a half inches broad in the widest part, slightly tapering below. The surface is dry, smooth, and light in color; on section, smooth and slightly yellowish. Just at the side of the left lobe is a smooth nodular mass about the size of a hen's egg; this mass is loosely attached to the tissues around it. The surface is dry, smooth, and yellowish in color; on section one sees a collection of soft yellowish debris with some yellowish, dirty, thin fluid. Around the outer part of the mass is a distinct plate of bone entirely surrounding it; this bone plate is about as thick as an ordinary wrapping-paper.

Brain: Is negative.

Anatomical Diagnosis: 1, Multiple myeloma; 2, Pulmonary emphysema; 3, Parenchymatous degeneration in the liver and kidneys; 4, Calcified encysted thyroid.

Microscopic Examination: Specimens from the ribs, sternum, and vertebræ show a very similar appearance. The predominating cells are about 10 to 12 micromillimeters in diameter, though they vary from 8 to 15. The outline is round if they are not too thickly set, in which case they show evidence of compression. With eosin and hematoxylin they stain fairly uniformly. The nucleus is excentric and quite large in most cells; there is usually one, though not infrequently two. A nucleolus is present and fairly distinct. The cell body stains reddish, though here and there one notices a cell in which the body has taken a decidedly bluish stain, showing the basic tendency to stain darker. These cells, I am inclined to think, are younger and less differentiated. There are no granules in the protoplasm. One can make out a fairly distinct cell membrane. A very fine supporting stroma of connective tissue is present. There are numerous fine bloodvessels with endothelial walls. The encroachment of the new growth on the bony tissue is very interesting to study. The bone destruction has been a lacunar, osteoclastic one. One can see small areas in which the "new growth" cells are encroaching into the bony structure and in some places a small inlet seems to have been made, and then a larger area within has been destroyed, the mass of cells that have doubtless been acting as osteoclasts showing within the bony tissue. Sometimes one sees a tumor cell surrounded by several bone cells. These osteoclastic cells are no larger than other ordinary tumor cells. I think, though, that the manner of bone-destruction is one of the most important things in the specimens to study, especially since the nature of the destruction shows so clearly.

The liver and kidneys show considerable cell degeneration, but no cells that look like the tumor cells are to be identified. In the kidneys is some colloid degeneration, and in the liver some fatty changes. The spleen shows considerable blood and blood-pigment but no other changes.

I have no definite conclusion relative to the true nature of the cells. The fact that some of them take a darker protoplasmic stain than others, simply means to me that they are of different ages.

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THE NEW PUBLIC HEALTH — FIFTH PAPER

THE NEW PROGRAM AND THE NEW PRACTICE—SECOND PART

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MINNEAPOLIS

CONCURRENT EPIDEMIOLOGY[*]

The preceding article outlined the first step in the modern handling of a typhoid fever epidemic, typhoid fever being selected because its proper handling illustrates best the principles and practice of modern public health work.

The first step is the discovery, by the methods of *emergency* epidemiology, whether water, food, flies, milk, or contact be the original main route of infection. The second step, to be outlined in this article, is the location, by the methods of *concurrent* epidemiology, of all the infected persons (known cases, missed cases, and carriers[†]). These are located because each, regardless of the original route by which he himself became infected, forms a new center of infection for spread by contact.

It was further pointed out that neither emergency epidemiology nor concurrent epidemiology were limited in their application to typhoid fever; and that the ability of concurrent epidemiology to handle properly contact typhoid outbreaks, whether contact be the secondary or primary route, is a conclusive demonstration of its ability to handle all other infectious diseases, since these others, while spread by public routes to some extent, are, in the mass, contact infections chiefly. No dependence on the argument by analogy from typhoid fever to other diseases is needed, however; for these other diseases are now and have been for years past handled successfully by these very methods.

Most persons contemplating the problem of finding missed cases and carriers for the first time, pronounce it impossible; then suggest, as the only solution, a house-to-house canvass of the whole community, hastily adding that of course such a measure is quite impractical. As a matter of fact, the public health detective does at times use, and use successfully, exactly that "impractical" measure,—the house-to-house canvass. This method is used in primary outbreaks from public routes, to locate *unreported* primary "known cases," and also to locate primary missed cases and carriers. It is necessary in such primary outbreaks because the distribution of *primary* missed cases and carriers, as well as of "known cases," is co-extensive with that of the guilty route. There is no other guide to their location, and therefore the whole distribution of the guilty route must be searched. But the need of a canvass *of a whole community* arises here only in typhoid or other infectious intestinal outbreaks; and then only when the infection is spread by a route *common to the whole community,* and therefore practically only when the guilty route is a public water supply. In milk outbreaks, those who did not use the guilty milk need not be examined; and a similar statement is true also regarding food outbreaks. Fly outbreaks rarely affect a whole community unless the community be very small; and in small communities of course a general canvass is not very difficult.

In the majority of epidemics, and because the majority of epidemics are due, not to great public routes, but to private contact, the finding of missed cases and carriers does not require even a partial house-to-house canvass. This is true of typhoid, and other, secondary outbreaks (which are contact outbreaks) as well as of the great majority of all outbreaks (since the majority are contact outbreaks also).

The reason why missed cases and carriers can be found in contact outbreaks without a house-to-house canvass depends upon a fact of which the true significance is not fully appreciated outside of epidemiological circles. It is this: such missed cases and carriers are not distributed at pure, blind random anywhere and everywhere throughout the community. *They occur in certain groups—and these groups can be located because they betray themselves through their connection with known cases. Hence the location of known cases locates these groups also.*[*]

This most important epidemiological principle is called the principle of *zones of infection.* It is the cardinal principle of concurrent epidemiology.

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[*] **Emergency** epidemiology is the epidemiology required in outbreaks from single great routes,—water, food, flies, milk. **Concurrent** epidemiology is the epidemiology required in contact outbreaks, i. e., outbreaks from multiple private sources. Emergency epidemiology is rapid and spectacular; it is played hard, against time, to save large groups of people. Concurrent epidemiology is relatively slow and plodding; it ferrets out, one by one, the individual persons whose infection threatens families or small groups. Emergency epidemiology will disappear when the great routes are properly protected. Concurrent epidemiology will greatly develop; it is the most powerful and practical weapon yet devised for **the abolition of the infectious diseases.**

[†] Missed cases include mild, unrecognized and concealed cases, early cases, and convalescing cases. Carriers are infected well persons capable of infecting others.

[*] It must not be supposed that these groups are confined to families, immediate neighbors, etc. Their true basis is sociological relationship, not mere physical propinquity. In a single scarlet fever outbreak originating in one community Dr. A. J. Chesley found the related sociological groups distributed in 3 states, involving 3 cities, 2 villages, and 24 townships in 10 counties. The Mankato typhoid fever outbreak of 1908 affected over 40 points outside of Mankato.

The principle of *zones of infection* was first clearly recognized in diphtheria epidemics, and its development and demonstration as a practical working rule depends, primarily, on diphtheria investigations; but both principle and practice have now been established for all the well-studied epidemic diseases.

The epidemiologist,* in putting into practice this principle, locates first the known cases, and then searches the zones of infection, which they indicate, for missed cases and carriers. The details of this search vary with each disease and are too technical for consideration at this time. Suffice it to say that the finding of missed cases and carriers, as well as of known cases,—that is, of the very framework of the ramifying threads of the infectious diseases,—is a problem not only solvable, but already solved, and already reduced to a routine basis. As an art, this concurrent epidemiology is somewhat more arduous and time-consuming than the art of emergency epidemiology, but it is thoroughly practical and has been successfully followed for years past all over this state, in an average of two to three epidemics every week. The visiting nurse in "concurrent epidemiology," can be made a most valuable and efficient aid, to say nothing at present of the other and even more indispensable services in other directions which are within her especial province.

This principle of zones of infection applies to tuberculosis just as to any other infection spread by contact; indeed, the location of missed cases in tuberculosis (carriers in tuberculosis are hypothetical to date) offers less difficulty to modern epidemiology than the same problem in other infectious diseases.

So much for past and present practice.

Turning now to the future era of "supervision of sources," the principles and practice already described pave the way for appreciation of the probable developments. In reconsidering the wolf metaphor already outlined, everyone will ask, and wisely, Why wait until some sheep are killed before we protect the others? Why not patrol the known routes by which the wolves reach the sheep; or, better, build wolf-proof folds; or, best of all, teach the sheep to protect themselves—to fight the wolves or at least to dodge them?

Those who believe that infectious disease can be warded off, in the face of infection, by diet,* exercise, good ventilation, and "strict observance of the laws of bodily health," are those who would train the sheep to fight; would train the body to destroy all infection that may reach it. But, as we do not know how to teach sheep to fight, so we do not know the laws of health needed for this purpose if any such exist.† Such methods tested against infection have generally failed‡ so far. In that day when sheep fight wolves they may succeed. Those who be-

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*It must be evident that those private practicing physicians who are not health officers, cannot, for many reasons well understood by the profession, do epidemiological work, emergency or concurrent, except in overwhelming outbreaks, where ordinary conventions and social relations are temporarily foregone. Even those private practicing physicians who are also health officers, encounter difficulties and obstructions, ethical, social and conventional, which professional epidemiologists, who are not in private practice, do not meet. Hence in all outbreaks the physician finds that his most valuable functions consist in treating the sick and in advising protective measures to those who apply to him. Physicians also often combine, very successfully, to publish material or give public lectures of instructions during epidemics. But, after all, the chief service which the physician can render to official public health is the reporting of **known cases.** Known cases, as has been shown, are the basic datum-points for emergency epidemiology, i. e., for the finding of the routes of infection; and they are even still more important in concurrent epidemiology, i. e., in the study of the zones of infection. Epidemiology is greatly aided when the physician performs thoroughly this, his primary, public health duty.

*A most important exception to the general statement that proper diet in itself cannot prevent the development of infection provided infection gains access to the body should be recorded to cover the case of nursing infants. It has long been noted that breast-fed infants, during the period that they are so fed (but during that period only) are, practically speaking, immune to many infectious diseases. This is so true of scarlet fever and measles, that in such diseases no great concern need be felt for such an infant, even though the mother herself have the disease. In diphtheria, a nursling to some extent shows a like immunity. In smallpox, this is not true and in tuberculosis it is at most very doubtful.

That this escape of nurslings is purely a matter of the enormous advantages in nutritional value, to an infant, of mother's milk over other foods has yet to be demonstrated. Nursing infants are by the mere fact of nursing less likely than are other infants to be exposed to whatever routes or sources of infection may be about, unless the mother is herself a source. But in scarlet fever and measles, at least, this is not the whole explanation. It has been suggested that the real reason lies in the transmission to the child of actual immunity-producing bodies in mother's milk. If this be so, breast-feeding in infants as a protection against certain infectious diseases combines in one operation the chief principles of defense; good nutrition, specific immunization and the avoidance of infection. Other forms of feeding fail to provide these defences; and usually combine against the infant poor nutrition, absence of immunization, and exposure to the five routes of infection. Great skill and care and constant watchfulness may serve in artificial feeding partially to offset these dangers; breast-feeding automatically protects against them almost without effort. Moreover, breast-feeding accomplishes in **other ways** four times the service in saving infant's lives that it accomplishes in cutting out infectious diseases. (The writer wishes to record his indebtedness to Dr. J. P. Sedgwick, of Minneapolis, for much valuable information on this subject.)

†Once more we beg our readers not to think that because building up the body cannot make it proof against infectious diseases, building up the body should be abandoned. To say that physical care of the body never made a Newton or a Shakespeare, is not to say that no man should care for his physical welfare. The laws of physical health, even so little as we know of them, have many virtues. Because protection from infectious diseases is not one of them detracts no whit from any of the others.

‡Tuberculosis and pneumonia are often held exceptions to this rule, but that they are exceptions is being questioned.

lieve that the sheep may be taught to dodge the wolves have much more in their favor.

Dodging infection is well understood. The physician, the nurse, the epidemiologist, handle with impunity the very sources of infection themselves,—infected persons and their infected discharges. Why not teach this art to every citizen? The principle is simple,—prevent infected discharges from entering the mouth. It is in the practising of this principle, simple as it is, that the inexperienced person fails. A single slip may be fatal, and slips are constantly made. Moreover, to guard against those infected persons *who are not recognized as such,* means that *all* discharges must be kept out of *all* mouths at *all* times,—a theoretically possible, but, to the vast majority of the work-a-day world, a practically wholly impossible, performance. If we give up in despair the hope of excluding *all* discharges from *all* mouths and attempt to teach the ordinary citizen to recognize infection so that he may avoid at least infected discharges, we shall be attempting to make of each citizen, man, woman, and child, a highly trained physician. To teach personal defense against infection is a great thing for those who learn and practice it. As a general method for abolishing infectious diseases, it is quite hopeless; nevertheless, each citizen should have the chance to learn at least the principles, and later articles in this series will outline them.

Those who believe that infectious disease should be warded off by specific immunization have some sure ground to go upon; but the scope of immunization is at present small. These are they who would build wolf-proof folds; but we do not know how to build folds which will be proof against all kinds of these wolves. It is true we know how to build a fold which is proof against smallpox, and that is vaccination. Also we are experimenting with a fold proof against typhoid, which is antityphoid inoculation. But, alas, granting such folds are built, driving the sheep into them is a procedure forbidden to public health, except in Germany. In Minnesota we have 2,000,000 "sheep" in, say, 300,000 "flocks;" and not one-half of these have entered even the smallpox-proof fold. In vaccination and in antityphoid inoculation the old adage still applies: "First catch your sheep."

Those who believe in guarding routes of infection are those who would patrol the approaches to the sheep. This is at least a possible method, already established as of great value in some diseases. But a consideration of the following table shows that, like immunization, its scope is limited. Its scope is broader than that of immunization, but it is not broad enough to cover all infectious diseases.

If we tabulate the different infectious diseases occurring in Minnesota on the basis of their chief routes of transmission we find that water, food, flies, and milk are the main public routes; the many private routes we group under contact; not every route operates in every disease. Thus:

THE CHIEF INFECTIOUS DISEASES OF MINNESOTA
CLASSIFIED BY THEIR CHIEF ROUTES
OF INFECTION

Typhoid fever (and other intestinal infections) are carried chiefly by............	water	food	flies	milk	contact
Tuberculosis (human)* is carried chiefly by..............			flies**	milk	contact
Diphtheria, scarlet fever, measles, German measles, mumps, whooping-cough, smallpox, chickenpox are carried chiefly by..................				milk	contact
Syphilis, gonorrhea, trachoma, cerebrospinal meningitis, leprosy are carried chiefly by					contact

Hence water and food as great public routes of community infections carry only the intestinal infectious diseases. Flies, practically speaking, also carry this group only, the amount of tuberculosis carried by flies being small. Milk carries many infectious diseases, but contact alone carries all.

If we guard water supplies only against infection, we eliminate water-borne intestinal infections (this, so far as typhoid is concerned, would be about one-third of the total typhoid in Minnesota). We leave untouched intestinal infections carried by food, flies, milk, and contact. Also we leave untouched *all other infectious diseases.*† If we guard food, as well as water, we eliminate such intestinal infections as are carried by food and water, but the fly, milk, and contact routes for these remain; so do all routes which carry the other infectious diseases.

If we eliminate flies also, fly typhoid and its congeners go, but milk and contact typhoid still remain with us. It is true that a slight effect on tuberculosis also might be noted; but nothing else is touched. If we guard milk supplies against infection,† we begin to make great strides, but *contact*, the great route of human tuberculosis and of all the other infectious diseases, including the intestinal (in Minnesota), still will operate.

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*Bovine tuberculosis is of course derived chiefly from the milk of tuberculous cows. In many ways this disease is best separated for administrative purposes from human tuberculosis. The carriage of human tuberculosis in milk referred to in the table is that dependent on the infection of milk by tuberculous milk handlers.

**Insignificant.

†Hazen's theorem—that infected water supplies carry all the infectious diseases—is an unproved and much disputed hypothesis as yet.

The fact is that while public water, food, fly, and milk infections parallel invasion by wolves *coming from without*, contact infection parallels the presence *amongst the sheep themselves*, of "wolves in sheep's clothing." Such wolves, because intermingled with the sheep, cannot possibly be eliminated by guarding the approaches.

If, then, the guarding of public routes can exclude only some of the infection, what remains?

The extermination of all the wolves—the abolition of the sources of infection.

If our modern wolf-hunters can find the undisguised wolves and even the wolves in sheep's clothing, *after* the sheep are slain, why cannot they find them also *before* the sheep are slain? If the very *sources* of infection (known cases, missed cases, and carriers) cannot escape our epidemiologists armed with their modern principles, why wait for an epidemic before we go after them at all?

Turn again to the table and see that if we begin operations for control with water, we must move through food and flies and milk to contact before we have included all even of typhoid; and until we reach contact, we do not begin to touch the bulk of the other diseases at all. But if we begin with control of contact, we find that *the method which eliminates contact infection necessarily eliminates the other forms also.* That method when shorn of nonessentials is the supervision of *all* infectious persons.

SUMMARY

To drop metaphors, the new program of official public health is the abolition of the infectious diseases.

The measures for this purpose in progressive order of general efficiency, from lowest to highest, are—

1. The securing to each individual citizen continuously of his highest possible general physical health. Ideal as this is as an end in itself, it can have little direct effect on most infectious diseases, except during infancy, although it is supposed to be a factor in reducing tuberculosis and pneumonia even in adults.

2. The securing to each individual citizen of instruction and training in the personal conduct which he must follow in order to avoid receiving into his body the discharges of infected persons. This as a system is perfect, but the securing of the daily carrying out by everyone of the personal conduct needed is a hopeless dream.

3. The securing to each individual of continuous specific immunization. Technically practical as yet only against smallpox and typhoid fever by inoculation, and in infancy against certain infections by breast-feeding, the scope of this procedure is very limited; and it must be remembered that the public have never yet adopted even smallpox immunization, except under compulsion, to an extent sufficient to abolish even this one disease.

These three measures place the abolition of infection directly upon the individual, as though, to abolish foot-pads, we should arm each citizen and train him in *jiu jitsu;* or as though, because of one free wolf, we should put five hundred sheep in armor. The three measures which follow place the abolition of infection directly upon a very small group of experts who deal directly with the infection itself. These three measures would put the one wolf in bonds, and let the five hundred sheep go free.

4. The physical supervision of the four great public routes of infection (public water supplies, public food supplies, flies, which are public property, and public milk supplies) to exclude all discharges from them. The principles are well understood, but, in practice, systematic application usually is lacking. (Physical supervision of such public and private surroundings as, by their effect on conduct, may bear on the operation of the fifth and greatest route of all, i. e., contact, is necessarily at present more a matter of education than of official action, especially where private surroundings are involved.)

5. The physical supervision of all *known infectious cases* to exclude their infected discharges from all routes. This, thoroughly done, would make a tremendous impression on infectious diseases. But *known* cases form not more than half the sources of infection.

6. *The sociological supervision of all infectious persons.* These are (in Minnesota) *the* sources of infectious disease. Once found and

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†A great deal of the alleged milk supervision of today to prevent watering or to keep up the fat standard has no relation whatever to guarding milk against infection. Even the campaign for clean milk eliminates dirt chiefly. Unless especially conducted to prevent infection, it fails on this latter score completely.

supervised, infection from the human *must* stop *in toto.*

For the first three measures, education, demonstration, persuasion, are the things required; but also the abolition of carelessness, poverty, and the pressure of necessity. Knowledge alone is not enough; time and facilities to do with are needed also. To supply all these to every citizen, man, woman and child, is an ideal to be sought by every path; but an ideal that will take long years to realize.

For the second three we have principles and practice, precedent, authority, some law, and the hearty support of public opinion *in epidemics.* We need a few new laws. Chiefly we need proper organization and increased equipment; but, more than all, the hearty support of public opinion, *continuously,* not in epidemics only.

Of all these measures, the last is certainly the most inclusive; properly done, it excludes the need (so far as abolition of infectious diseases is concerned) of all the others. It is cheaper, simpler, easier, more direct and rapid than any other, and does not "interfere" with every citizen, in every act of daily life, indefinitely, for it deals with but one small class (infected persons), and only while infective; and it deals, even with them, merely to the extent of preventing the spread of their infected discharges to others.

(The next article will consider the first three measures in greater detail.)

PROGRESS IN MEDICINE

Abstracts of medical reprints and articles on file in the library of the Department of Medicine, College of Medicine and Surgery, University of Minnesota.

UNDER THE CHARGE OF

DR. CHAS. LYMAN GREENE

Professor of Medicine and Chief of the Medical Clinic

These abstracts are read and discussed at the departmental meetings held monthly at the University Hospital.

PARATYPHOID FEVER IN MALTA

SURGEON-CAPTAIN ROBERT SAMUT.

(Reprinted from *The Journal of the Royal Army Medical Corps*)

October, 1909

The author merely gives a brief description of the bacteriological properties of the paratyphoid organism. His remarks upon the differentiation of B. paratyphosus into its various types, and these again from B. typhosus and B. coli communis are inadequate and throw no light upon this difficult problem.

He divides cases of paratyphoid fever into four clinical groups, one of which is characterized by those symptoms usually met with in Malta fever. He states in his own experience to have seen a large number of cases in Malta presenting the symptomatology of Malta fever, but which, on careful bacteriological examination, proved to be true examples of paratyphoid infection.

Paratyphoid fever, as a complicating infection during the course of other fevers, notably Malta fever, is stated to occur. Proof of such is far from being conclusive, based, as it chiefly was, upon the occurrence of intestinal hemorrhages and the finding of ulcers in the lesion at autopsy.

Amongst the prophylactic measures the writer urges the proper disposal of excretion, the reporting of all cases of paratyphoid to the sanitary authorities, the isolation of cases, and the proper handling of the dangerous "bacillus carrier." E. T. F. RICHARDS.

REPORT OF A CASE OF LOUD VENOUS HUM HEARD OVER XIPHOID CARTILAGE IN CIRRHOSIS OF THE LIVER

JOHN NOOMAN HENRY, M.D., PHILADELPHIA

American Journal of the Medical Sciences, January, 1912

In Henry's case a loud roaring murmur was heard over the ensiform cartilage localized in an area scarcely exceeding the space covered by the stethoscope. It was continuous, but had a distinct inspiratory accentuation and an expiratory lessening. It could be made to disappear by light pressure of the stethoscope.

At autopsy a venous sinus, about seven in. in diameter, was found underlying the ensiform. Proceeding from an opening in the sternum were several small superficial veins, probably in communication with the sinus; another vein communicating with the vein in the suspensory ligament of the liver, emerged from the sinus; there was no connection with the portal vein or inferion vena cava. The entire lesion was contained in a mass of adhesions about four by two and one-half cm.

These continuous loud murmurs are usually of venous origin. The sound in this case must have been transmitted from the sinus to the surface by the small veins which perforated the ensiform. The extreme localization of such a loud sound is difficult to explain.

E. J. HUENEKENS.

TRISCUPID STENOSIS, WITH A REPORT OF FIVE CASES

THOMAS B. FUTCHER, M. B., BALTIMORE

The American Journal of the Medical Sciences, November, 1911

This lesion is comparatively rare, and very few are recognized during life. Out of a total of 195 cases in the literature, in but 13 was the diagnosis made before autopsy. Futcher contributes 1 case of his own, in which he made the diagnosis *intra vitam,* and 4 taken from the autopsy records of Johns Hopkins Hospital.

In Futcher's case, the diagnosis of double mitral and double aortic lesions was made; but he felt that these did not account for all of the signs, and made the diagnosis of an associated tricuspid stenosis on the following findings: (1) the extreme cyanosis; (2) the considerable increase in the cardiac dullness to the right; (3) in spite of the fact that there was an exaggerated systolic shock and a snapping first sound at the apex, both were even more striking in the fourth and fifth interspaces at the left sternal margin. There was no presystolic thrill or murmur.

It is of interest that in all of his cases there was an associated mitral stenosis and in 3 also an aortic stenosis.

In an analysis of all the recorded cases, he finds that tricuspid stenosis occurs commonly between the ages of 20 and 40, more often in females, in the proportion of seven to two, and in about one-half the cases there is a previous history of rheumatism.

In regard to the association of valve lesions, the tricuspid lesion existed alone in 14 cases, tricuspid and mitral in 104, tricuspid and aortic in 64, tricuspid, mitral, and aortic in 6, tricuspid, mitral, and pulmonary in 12.

The most striking symptom is the extreme cyanosis. The physical signs are forcible, presystolic pulsation in the jugulars, and greatly enlarged liver (if the right auricle is compensating), a radial pulse of very small volume, a systolic shock over the tricuspid area, increase of cardiac dullness to the right, a rumbling presystolic murmur (rarely), and a snapping first sound over the tricuspid area. E. J. Huenekens.

PHENOLSULPHONEPHTHALEIN AS A TEST OF RENAL FUNCTION

Hugh Cabot and Edward L. Young, Jr.,

Boston Medical and Surgical Journal, Oct. 12, 1911

The writers use the following test: One cubic cm. of solution containing 6 mg. of drug is injected into the upper arm or the thigh; the bladder is emptied; the patient catheterized; and the urine received into a receptacle containing a little 25 per cent sodium-hydrate solution. A pink color reaction indicates the beginning of drug-excretion. The catheter is withdrawn, and the urine is collected, hour by hour, as may be necessary. In case of obstruction the bladder is emptied each time by catheterization, or it may be kept in position during the test. For the determination of the drug excreted comparison is made by means of the Dubosc colorimeter or with a set of test-tubes containing standardized solutions varying from 5 to 50 per cent. If the colorimeter is used a small amount of solution containing 3 mgm. to the liter, i.e., one-half the strength of the solution used for injection, is put into the right-hand cup, which is raised until it reads ten. A portion of the urine to be tested is put into the left-hand cup, and the cup is raised or lowered as is necessary to make a reading. The fraction made by using ten as a numerator and the reading as a denominator, multiplied by fifty, represents the percentage strength of the colorimeter solution and equals the percentage amount of drug contained in the unknown specimen. This method is inaccurate if the output is so low as to make the urinary coloring matter over prominent in the readings. If test-tubes are used there should be an excess of alkali. The reading by this method is acurate, and a slight orange tint does not affect it. If hematuria exists the urine should be thoroughly boiled and filtered before testing. The method lends itself to an examination of the individual kidney by the use of the ureteral catheter.

The authors examined 117 cases making 169 tests. In normal cases (14) the average excretion time was ten minutes. Extremes represented six and seventeen minutes. The output during the first hour was 46 per cent, the extremes being 38 and 52 per cent. The average output the second hour was 17 per cent. The amount excreted seemed to bear no relation to the quantity of urine.

In prostatic obstruction excretion began on an average in about twenty-two minutes. The average output was low, 26 per cent. In relation to nephritis they report 44 observations on 26 chronic cases. In one case the average output was but $15\frac{4}{10}$ for the first hour and $13\frac{6}{19}$ for the second hour, the average time of the appearance being about twenty-five minutes.

The results in the group were such as to indicate the necessity for more careful clinical observation, as well as a more extended period for the study of excretion.

The authors do not administer water before the test is made, and advise against the use of basic lead acetate to clear the urine. To overcome the objections to the method they suggest the use of separate standard solution, in which the urine of the patient is used as a diluent.

[So great are the clinical difficulties involved that, taken as a whole, the paper is far from convincing.]

J. S. Gilfillan.

ZUR DIÄTETISCHEN BEHANDLUNG DES MAGENGESCHURS

Prof. Dr. Albu, Berlin

Monatschrift für die physekalisch-diätetischen Heilmethoden 1. Yahrgang, Heft 8

This rational and readable paper takes up the dominating types of the modern medical treatment of gastric ulcer and rightly criticizes both the statistics and regimen of Leube and Lenhartz.

Professor Albu states—

That certain cases of gastric ulcer recover under almost any treatment, or no treatment, as is proven by autopsy records.

That it *can* exist without severe symptoms is proven by every-day clinical experience at the operating-table, as well as by autopsy records.

That in all individuals of normal resistance a strong tendency to spontaneous healing exists which is wholly absent in anemic, poorly nourished or constitutionally defective victims.

That almost all types respond to proper treatment, but a few yield no response.

As to the claims of combative adherents of Leube and Lenhartz respectively, the author asserts that no conflicting principles are involved, but purely questions of method.

He objects to any attempt to prove the superiority or exceptional value of this or that fixed method by the death-rate alone, rightly insisting that the percentage of permanently cured cases is the vital factor.

Leube now reports 90 per cent of recoveries, and Lenhartz 91.6 per cent. These figures Professor Albu refuses to accept because, like so many surgical reports, they apply to the condition of the patient at the time he leaves the hospital clinic, i. e., from four to six weeks after treatment is instituted.

He would demand figures based upon a period of immunity of not less than one year and insists that in some so-called "cures" healing is predicated upon mere loss of pain and tenderness, and often means only a superficial and imperfect healing process.

In such cases relapses after varying periods are all too frequent. Albu would place all *relapsing and hemorrhagic* cases upon rectal feeding for from 3-10 days (until pain, tenderness, and evidences of marked bleeding are removed or greatly relieved).

The methods of both Leube and Lenhartz he believes to be unnecessary, and that of Lenhartz, especially to involve too great a burden for the stomach during the final days of treatment.

As practical objections, both in private and public practice, he mentions the extreme cost and great difficulty associated with the procuring of the quantity of fresh, "drinkable eggs," especially during the winter months.

Finally, he urges the difficulties encountered in securing the proper weighing and accurate increases of food and materials prescribed by Lenhartz.

Professor Albu employs the milk and cereal diet, which does not excite HCl secretion and is unirritating.

During the following weeks the diet is increased cautiously and steadily, and after three weeks meat, jellies, scraped beef (or finely chopped), and other foods are gradually introduced.

Most wisely, we believe, Professor Albu refuses full diet for at least three months, and for a year excludes the highly indigestible or mechanically irritating food substances.

In closing, he strongly urges the view now universally entertained by men of large experience, that no fresh ulcer case shall be treated as an ambulant patient for the first 8-14 days at the least.

Against medicinal treatment *per se* he is outspoken.

C. L. Greene.

THE BLOOD-PICTURE IN HODGKIN'S DISEASE

C. H. Bunting

Johns Hopkins Hospital Bulletin, Vol. XXII, No. 248, October, 1911

In the above article and in one published in the Bulletin, April, 1911, Dr. Bunting takes up the blood-findings in Hodgkin's disease and concludes that the blood can be an aid to diagnosis.

As there is always room for argument in the recognition of any case of Hodgkin's, the author limits his cases (11 in all) to the entity established by Reed, Longcope, and Simmons. They confine Hodgkin's to a disease most common in young males, characterized by progressive enlargement of lymph-glands, by a tendency to anemia, certain pressure-symptoms, and a fatal termination, usually within 3 to 5 years. He adheres to Longcope's microscopical description.

In most of the 11 cases, glands were excised for examination. Glands present an early increase in lymph-adenoid tissue with later proliferation of endothelioid cells, formation of uninuclear and multinuclear giant cells, thickening of reticulum, and final overgrowth of connective tissue. Eosinophiles, though not specific, are frequently found in great abundance.

The architecture of the gland is early destroyed.

Fabian's recent article (*Wien Klin. Woc.*, XXIII, 1515), is cited in which he concludes that while there may be characteristic features in the blood-picture of the disease, they are not constant enough to be of diagnostic value.

In the study of his cases the author has worked in conjunction with Dr. Yates of Milwaukee.

In their previous paper, mentioned above based on the study of 8 cases they stated that in Hodgkin's there is a special activity of the platelet producing elements resulting in the production of large numbers of blood-platelets and in emigration of megalokaryocytes in large numbers from the bone-marrow.

Eleven cases form the basis of the report, ranging from very early cases to some a short time before fatality occurred. Wright's stain was used together with Erlich's tri-acid.

To sum up: The author states that on account of the constant high percentage of so-called transitional cells, taken together with increase of blood-platelets, the picture is almost pathognomonic of Hodgkin's disease. He further states that while from his experience he believes a diagnosis can be made from examination of the blood, he would not recommend it to the exclusion of the histological examination of an excised gland.

F. A. Olson.

SOURCES OF ERROR IN THE APPLICATION OF THE BENZIDIN TEST

Dr. Samuel Florsheim

American Journal of Gastro-Enterology, January, 1912

The author emphasizes the diagnostic value of this test for occult blood in the stools, but finds that not only must the patient have been previously kept on a meat-free diet, but that certain substances commonly allowed may be productive of error.

In giving a motor-meal one must avoid prunes if Dr. Florsheim's observations are correct.

Every test of the 150 made with this common constituent of the motor-meal proved positive for the benzidin, though negative to aloin and guaiac.

Raisins gave no reaction with benzidin or with aloin and guaiac, and may therefore safely be employed.

Evidently, prunes must be added to the list of undesirable substances which already includes rice, milk, and potatoes, to be avoided in giving meals which are to be subjected to the benzidin test. J. S. Hynes.

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MAY 15, 1912

THE STATE ASSOCIATION MEETINGS

The South Dakota Association meets in Mitchell on May 21, 22, and 23.

The Minnesota Association meets in Duluth on August 13, 14, and 15.

THE ATLANTIC CITY MEETING

The time is drawing near when train space and hotel accommodations must be reserved for the coming meeting of the American Medical Association.

Reservation for berths or sections are coming in, but there is still room for more occupants. The trip will be comfortable and easy, and no delays need be expected. In order to know how many men from Minnesota and the Dakotas are going to Atlantic City the committee asks for early reservations.

It is comparatively easy to secure rooms in hotels, but it is wise to write or send a night letter in order to avoid disappointments and uncertainities.

Hotels are so numerous in Atlantic City that there is no crowding, even though a section meets or has its headquarters in one hotel exclusively.

The program already published in the May 4th number of the *Jour. of the A. M. A.* is a remarkably good one, and everyone can find something of very great interest. The Northwest should send a large number to represent it; and THE JOURNAL-LANCET urges its readers to make every effort to attend the coming meeting.

The organization is growing steadily and is reaching a higher standard every year. There is much to see in the exhibits; and the new sections that have been born within a year or two should attract a good attendance. Atlantic City in itself is well worth a visit. There is no other cosmopolitan seaside resort in this or any other country that presents such a variety of interests or amusements.

THE JOURNAL-LANCET, through the committee, will make arrangements for transportation for any of its readers at any time, the sooner the better, but at the last moment there will be found room for the procrastinator.

Final arrangements have been made for the Northwestern medical men who have planned to travel together from the Twin Cities to Atlantic City. Special cars for their use will be provided. They will be attached to the Pioneer Limited of the Milwaukee Line, leaving Minneapolis at 8 p. m., and St. Paul a half hour later, on Saturday, June 1st. These cars will be attached to the Physicians' Special leaving Chicago Sunday at 3 p. m. over the Pennsylvania Line, and will reach Atlantic City on Monday at 2 p. m.

The rate for the round trip is $45.25 and is not good until June 1st.

Those who desire to go by way of Washington can make arrangements to do so when they purchase their tickets. Other information in regard to special stop-over privileges and routings beyond Philadelphia can be best obtained from the ticket agents of the Milwaukee Line in St. Paul or Minneapolis.

In order to be sure of berths in the special cars, it is necessary to make reservations as early as possible, and this can be done through this office, the office of the *St. Paul Medical Journal*, or the ticket office of the Milwaukee Line, either in St. Paul or Minneapolis.

ANTITYPHOID VACCINATION

Dr. Frederick F. Russell, Major in the Medical Corps, U. S. Army, has a convincing article in the *Jour. of the A. M. A.*, May 4, on the results of antityphoid vaccination in the U. S. Army in 1911 and its suitability for use in civil communities.

This work was begun by Pfeiffer and Kolle in Germany. Wright, of London, published the result of his work on seventeen cases in 1897. In 1898 he continued the work in India where 4,000 British soldiers were vaccinated. In the Boer War, he and Leishman supervised the inoculation of 100,000 troops. This work was carried out in Africa with some more or less discouraging results, but, on the whole, the outcome was satisfactory. The lack of success was found to be due to some error in the preparation of vaccines, but now the method seems to be on a sound basis.

The experience outlined by Russell in this country began in 1908; and in 1909 all who volunteered were vaccinated. In 1910 16,073 persons were immunized, and in 1911 about 80,000 were treated; therefore in three years about 100,000 were vaccinated.

The recent mobilization of troops in Texas afforded an exceptional opportunity for observation, and the results were so highly successful that typhoid fever was a negligible factor in the health of the division. In various parts of the country the same experiments were tried with like results.

At San Antonio the camp was admirably located, the disposal of waste and sewage was thorough, and the breeding-places of flies were scientifically treated. Burning over the surface with crude oil and refuse forage was found to eliminate fly-breeding zones.

The excreta from camps passed through three stages, the latrine-pit, the Reed trough with excavator attachment, and the so-called incinerator. All of these methods were found useless or unsatisfactory, and a narrow latrine-pit, 18 to 24 inches in width, covered by a tightly-fitting wooden box with self-closing covers, was substituted. The contents of the pit were sterilized daily by fire, crude oil and thin layers of hay being the fuel.

Very few cases of typhoid developed in spite of the fact that the men did not exercise more than ordinary care of themselves.

During a period of four months there were 49 cases of typhoid with but 19 deaths reported among the civil population of San Antonio.

The freedom of the troops from typhoid was attributed to vaccination.

Richardson and Spooner vaccinated 100 nurses in the Massachusetts General Hospital, and for the first time in the history of the institution there were no cases of typhoid among nurses or attendants.

Vaccination and general sanitary reform would in all probability stamp out typhoid all over the country. Russell advances the following conclusions:

1. Antityphoid vaccination in healthy persons is a harmless procedure.
2. It confers almost absolute immunity against infection.
3. It was the principal cause of the immunity of our troops against typhoid in the recent Texas maneuvers.
4. The duration of the immunity is not yet determined, but is assuredly two and one-half years, and probably longer.
5. Only in exceptional instances does its administration cause an appreciable degree of personal discomfort.
6. It apparently protects against the chronic bacillus-carrier, and is, at present, the only known means by which a person can be protected against typhoid under all conditions.
7. All persons whose professions or duty involves contact with the sick should be immunized.
8. The general vaccination of an entire community is feasible and could be done without interfering with general sanitary improvements, and should be urged wherever the typhoid-rate is high.

THE OWEN BILL

The Owen bill has had hard sledding in Congress in spite of the elimination of the objections raised by the antis. Every effort has been made to simplify the bill but objections are pouring in in larger numbers than endorsements.

A few telegrams or letters that have been sent in by irresponsible and unthinking people have influenced congressmen more than the endorsements of many county and state associations. The only way to meet this opposition is to bombard senators and representatives with telegrams and letters urging the passage of this bill.

As usual, the medical profession is slow and indifferent when it comes to a conflict between Christian Scientists, leagues for medical freedom, osteopaths, and the regular medical profession. Even if all the men who attend the Atlantic City meeting were to sign a petition in favor of a bill to protect the health of the people, a few outside protestants could kill its effect upon congressmen.

A compromise bill has been offered, but it is quite likely to be talked down or discarded for fear of hurting someone's feelings.

It was thought at one time that Christian Science Senator John D. Works, of California, was convinced that the health bills were a good thing, but he and others cast slurs or doubts upon them or at least delay legislation to such a degree that the outcome is discouraging.

Senator Smoot has a bill creating a public health service to be presided over by an assistant to the Secretary of the Treasury. This will include the Public Health and Marine Hospital Service and make it subservient to a department which should not have anything to do with public health. Perhaps this compromise would be a step in advance and ultimately work into an independent department.

CORRESPONDENCE

MINNEAPOLIS AND THE A. M. A. ASSOCIATION

Minneapolis, May 9, 1912.

To the Editor:

Relative to your editorial which appeared in the May 1st Journal-Lancet concerning the American Medical Association for 1913, we would say that the Hennepin County Medical Society over a year ago unanimously voted to appoint a committee with instructions to secure the Convention of the American Medical Association for the year 1913 or as soon thereafter as possible. That invitation was presented to the Association last year, but it could not be acted upon until this year.

In the meantime the committee has been at work preparatory to making a greater effort this year towards securing the Convention and it has already issued the invitation to the Association, letters having been written to the president, president-elect, chairman of the Committee on Place of Meeting, and to every delegate. Replies have been secured from many delegates who have expressed themselves favorable to this location.

The Convention Committee of the Civic and Commerce Association of Minneapolis has taken the matter up and recommended to the Association that that body take an active part in securing the Convention. Thus you will see what has been done already towards securing the Convention.

The advantages to a community of having a convention of such an organization as the American Medical Association are almost self-evident, especially to medical men. Such a convention will do much educationally in matters pertaining to medicine and sanitation, and from a business standpoint will prove of great advantage to our city. So far as the Association is concerned, it will prove in many ways an advantageous place for it to meet, and should draw a large crowd. The Association will naturally increase its membership by adding many Northwestern doctors to its list.

We append herewith the registrations of past conventions as given by Dr. Simmons:

1906, Boston	4,722
1907, Atlantic City	3,713
1908, Chicago	6,446
1909, Atlantic City	3,273
1910, St. Louis	4,086

Dr. Simmons, in his letter, states that the attendance amounts to about twice the registrations, counting the wives and visitors.

We feel sure that we shall be able to give the Convention a fine reception and that we shall not lack for workers.

We shall certainly be very glad of the assistance that The Journal-Lancet can give us.

Respectfully yours,
Frank C. Todd, M. D., Chairman,
Geo. Douglas Head, M. D.,
Wm. H. Condit, M. D.,
Committee on Invitation.

REPORTS OF SOCIETIES

THE MINNESOTA ACADEMY OF MEDICINE

The academy met at the Town and Country Club, Wednesday, May 1.

Dr. Law presented clinically a boy on whom he had made a tendon-transplantation to overcome the disability following infantile paralysis. The peronei muscles had been involved, producing a talipes varus and some equinus. He loosened the tendon of the tibialis anticus, then tunneled beneath the skin, and carried it over to the outside of the foot where he inserted it, getting an excellent result.

Dr. Wilcox described a substitute for gastroenterostomy, and Dr. A. Schwyzer related some of his experience along the same line.

Dr. Beckman, of Rochester, then gave an illustrated lecture upon "The Repair of Fractures with Lane's Splints." The subject was discussed by Drs. Benjamin, Moore, and Mann.

Dr. Tomlinson, of St. Peter, read a paper upon "The Pathologic Process in Chronic Interstitial Nephritis." This was discussed by Drs. A. W. Abbott, Nippert, Beckman, and Benjamin.

A. W. Dunning, M. D.,
Secretary-Treasurer.

MISCELLANY

A GRATEFUL CITY

Two Harbors, Minn., April 26, 1912.

Mr. H. M. Bracken, Executive Officer,
State Board of Health,
St. Paul, Minn.

Dear Sir: I have been instructed to extend to the State Board of Health, the sincere thanks of the City Council for the prompt action taken by your Board in locating the cause of the recent typhoid fever epidemic at this place, and for providing a speedy remedy for the elimination of this dread disease. We would further thank those gentlemen who were sent here to investigate the situation and who made such an excellent report on the condition of the water.

The people are well satisfied with the results of your investigations, and will give you their hearty support in any future work which you may have here.

Your scientific work has accomplished a vast amount of good, and we hope that your future efforts may be rewarded by success.

Very respectfully yours,
(Signed) Aug. Omtvedt,
City Clerk.

NEWS ITEMS

Dr. James Semple has returned to practice in Langdon, N. D.

Dr. H. G. Norton has moved from St. Paul to Crown King, Ariz.

Five nurses graduated last month from St. Joseph's Hospital at Minot, N. D.

Dr. M. B. Ruud, a 1911 graduate of the State University, has located at Alexandria.

Dr. J. B. Muir, who has been in Florida for several months, has located at Roseau.

The Sullivan Flats Sanatorium at Fairfax, S. D., has been sold to Dr. Jennie C. Murphy, of Yankton.

Dr. M. M. Hursh, of Deer River, is planning to open a sanitarium for tuberculous cases at that place.

Nine graduates of the Mounds Park (St. Paul) Sanitarium training course received diplomas last month.

Dr. John A. Lyng, who has been located in Alexandria for a number of years, has moved to Fergus Falls.

Dr. Bertrand Dawson, the private physician of King George of England, is visiting the Mayo Clinic at Rochester.

Dr. F. F. Benoit, who has been practicing temporarily at Brooks, has become associated with Dr. H. W. Gammell, of Madison.

Dr. Chas. H. Mayo has been elected health officer of Rochester, and he has *not* declined to do his duty as a citizen because of "a press of business."

Dr. J. P. McDowell has moved from St. Paul to Kimball and succeeds to the practice of Dr. W. J. Austin, of that place. Dr. Austin has moved to Spokane, Wash.

Dr. H. D. Newkirk, of Minneapolis, has been appointed by the Juvenile Protective League of the city, to study the delinquent children who come before the juvenile court.

Dr. E. A. Warner, of Nevada, Iowa, has leased the Home Sanitarium at St. Peter for a term of years. Dr. Warner was on the staff of the sanitarium at Nevada for three years.

Dr. H. W. Hill, of the State Board of Health, will be associated with Surgeon Talioferro Clark, of the U. S. Marine Corps, in an investigation of the Indians of the White Earth Reservation.

Dr. Milo M. Mead, who practiced in Minneapolis about twenty years ago and who was surgeon of a Minnesota regiment in the Civil War, died in Minneapolis last month at the age of 85.

Dr. H. A. Tomlinson, of St. Peter, made the principal address at the annual banquet of the Hennepin County Medical Society, given on April 29th. His subject was "Development and Degeneration."

Dr. Clara M. Hayden, who has been doing post-graduate work for the past year, has located in Wells and become associated with Dr. Holm of that place. Her specialty is eye, ear, nose and throat work.

North Dakota has only two chiropractics, one at Fargo and one at Kenmare. The latter, having been arrested for practicing without a license, announces that the National Chiropractic Association will test the law.

At the annual meeting of the South Dakota State Board of Health, held last month, Dr. O. N. Hoyt, of Pierre, formerly secretary, was elected president, and Dr. W. L. Vercoe, of Whitewood, was elected secretary.

The South Dakota State Association meets next week (May 23 and 24) at Mitchell. There are twenty-seven papers on the program, four of which are by outside men, as follows: Dr. Edward S. Judd, of Rochester, and Drs. F. O. Wright, H. L. Ulrich, and F. W. Schlutz, of Minneapolis.

The North Dakota State Medical Association is meeting today at Valley City. The program seems a short one, there being only eighteen papers. There are three papers on the program by men outside of the state, namely, by Dr. H. S. Plummer, of Rochester, and by Drs. C. Eugene Riggs and E. C. Wheeler, of St. Paul.

The Cass County (N. D.) and the Clay-Becker (Minn.) Societies held a joint meeting last month at Fargo, with Dr. M. A. Rindlaub, president of the former society, in the chair. Dr. A. J. Hagen, of Moorhead, and Dr. A. W. Skelsey, of Fargo, read papers. A luncheon and a social hour followed a profitable meeting.

Mr. Fox, who was engaged by the Hennepin County Medical Society to obtain evidence against a gang of abortionists in Minneapolis, was acquitted last week of the charge of attempt at blackmail brought by Dr. W. F. Hutchinson, of Minneapolis. Dr. Hutchinson paid Mr. Fox $1,000 to withold evidence against him, and then had Fox arrested. Fox proved that he had taken the money upon the advice of the committee of the Hennepin County Society.

PHYSICIANS LICENSED AT THE APRIL (1912) EXAMINATION TO PRACTICE MEDICINE IN MINNESOTA

UPON EXAMINATION

Hallberg, Charles A.	P. & S., Chicago,	1911
Jamieson, Earl F.	P. & S., Boston,	1911
Johann, Albert E.	Johns Hopkins,	1910
Knapp, Harry G.	Rush,	1912
La Vake, Rae T.	P. & S. of Columbia U.,	1909
Mitchell, Whiting B.	U. of Minn.,	1911
Painter, J. Carl	Rush,	1912
Richards, Ernest T. F.	McGill,	1905

BY RECIPROCITY

Banks, Wm. Hulbert	Keokuk,	1900
Beeler, Margaret H.	Denver Homeo. Med. Col.,	1899
Beffel, John M.	Northwestern,	1898
Ernest, George C. H.	U. of Kansas,	1906
Gulbrandsen, George H.	Bennett,	1906
Herron, David A.	Indiana Med. Col.,	1907
Holmgren, Knut D.	Northwestern,	1910
Holtan, Theodore	Marquette,	1911
Howg, Edwin M.	Northwestern,	1909
Johnson, Gertrude M.	Am. Med. Miss. Col.,	1904
Joyce, Thos. M.	P. & S., Chicago,	1908
Lee, Walter N.	P. & S., Chicago,	1909
May, Clayton E.	Marquette,	1911
McCarthy, William R.	Marquette,	1911
Naegeli, Frank	Northwestern,	1910
Oftedal, Sverre	Rush,	1911
Raiter, Franklin W. S.	Marquette,	1911
Schoregge, Charles W.	U. of Michigan,	1911
Shalett, Benjamin J.	Northwestern,	1911
Warner, Earl A.	Keokuk,	1905
Wiltrout, Irving G.	P. & S., Wisconsin,	1911
Zaworski, Edward A.	Creighton,	1911

OFFICE FOR RENT

A fine office in Minneapolis, in a modern building, centrally located, is offered to a dentist or a doctor with two other physicians. Rent moderate. Address M. T., care of this office.

PRACTICE FOR SALE

My practice, office furniture, buggy, cutter and team of horses. Practice averages from $4,000 to $4,500 a year. Location in southern Minnesota, about 100 miles from the Twin Cities. Can be purchased reasonably. Address W. B., care of this office.

PRACTICE FOR SALE

Practice in central Wisconsin, established 17 years and paying $3,000, goes to purchaser of my 8-room house. Price, $2,000; one-half cash, balance on time. In growing agricultural town of 800; on main railroad; good roads and competition light; nearest doctor 11 miles; good community of German-Americans; going to retire. Do not write unless prepared to accept terms. Address W. S., care of this office.

GOOD OPENING FOR A PHYSICIAN

There is a good opening in the south part of Minneapolis for a physician. One-half of an office with a long-established dentist is offered for rent cheap at the corner of Lake St. and Bloomington Ave., a car line intersection. Office is modern in all respects. Telephone, Tri-State—Calhoun 2984, or 3852.

FOR SALE

The instruments, office fixtures, and furniture of the late Dr. George M. Coon of St. Paul. This offers an exceptional opportunity for any one wishing to take up the specialty of Skin and Genito-urinary work, as Dr. Coon had a wide acquaintance and a large following. Address inquiries to Mrs. Edith N. Coon, 916 Hague ave., St. Paul, Minn.

PRACTICE FOR SALE

My practice in the finest location in east central South Dakota is offered for sale. For full information address H. H., care of this office.

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF MINNESOTA FOR THE MONTH OF FEBRUARY, 1912

REPORTED FROM 82 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES.	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia
Ada	1,253	1,432	*													
Albert Lea	4,500	6,192	5	1		2										
Alexandria	2,681	3,001	3													
Anoka	3,769	3,972	4													
Austin	5,474	6,960	7	3		2										
Barnesville	1,326	1,353	1												1	
Bemidji	2,183	5.099	5	1		2					1					
Benson	1,525	1,677	1			1										
Blue Earth	2,900	2,319	2	1											1	
Brainerd	7,524	8,526	9	1		1							1			
Breckenridge	1,282	1,840	0													
Canby	1,100	1,528	1													
Cannon Falls	1,239	1,385	1													
Chaska	2,165	2,050	1													
Chatfield	1,426	1,226	3	1		1										
Cloquet	3,074	7,031	7			1	1									
Crookston	5,359	7,559	5			1								1		
Detroit	2,060	2,807	3												1	
Duluth	52,968	78,466	70	5	1	15	1						1	2	3	1
East Grand Forks	2,077	2,533	3													
Ely	3,572	3,572	8	1		1							1		3	
Eveleth	2,752	7,036	5	1		1									1	
Faribault	7,868	9,001	6			1					1			1		
Fairmont	3,440	2,958	1													
Fergus Falls	6,072	6,887	8	3							1					
Glencoe	1,788	1,788	4													
Granite Falls	1,454	1,454	0													
Hastings	3,811	3,983	4												1	
Hutchinson	2,495	2,368	2												1	
International Falls		1,487	6	1		1							1			
Jordan	1,270	1,151	0													
Lake City	3,142	3,142	5												1	
Le Sueur	1,937	1,755	0													
Litchfield	2,280	2,333	2												1	
Little Falls	5,774	6,078	5												1	
Luverne	2,223	2,540	6	1		1										
Madison	1,336	1,811	1													
Mankato	10,559	10,365	8	1											1	
Marshall	2,088	2,152	2			1										
Melrose	2,591	2,591	1			1										
Minneapolis	202,718	301,408	290	36	6	36	7	2					4	7	18	3
Montgomery	979	1,267	2													
Montevideo	2,146	3.056	6	1	1	1								1		
Moorhead	3,730	4,840	4	1												
Morris	1,934	1,685	1													
New Prague	1,228	1,554	*													
New Ulm	5,403	5,648	3			1										
Northfield	3,210	3,215	2			1										
Ortonville	1,247	1,774	2												1	
Owatonna	5,561	5,658	7			2										
Pipestone	2,536	2,475	1													
Red Lake Falls	1,666	1,666	1													
Red Wing	7,525	9.048	7													1
Redwood Falls	1,661	1,666	2	2												
Renville	1,075	1,182	1	1												
Rochester	6,843	7,844	25	1		2					1				7	
Rushford	1,100	1,011	1													
St. Charles	1,304	1,159	3													
St. Cloud	8,663	10,600	5			1								1	2	
St. James	2,102	2,102	5					1								
St. Paul	163,632	214,744	154	21	11	16	2	2		1			2	4	10	1
St. Peter	4,302	4,176	1												1	
Sauk Centre	2,154	2,154	0													
Shakopee	2,046	2,302	3	1												
Sleepy Eye	2,046	2,247	1								1					
South St. Paul	2,322	4,510	3													
Staples	1,504	2,558	1												1	
Stillwater	12,318	10,198	3													
Thief River Falls	1,819	3,174	1													
Tower	1,111	1,111	0													
Tracy	1,911	1,826	2			1										
Two Harbors	3,278	4,990	6	1		1								1		
Virginia	2,962	10,473	11			1								1		
Wabasha	2,622	2,622	*													
Warren	1,276	1,613	0													
Waseca	3,103	3,054	2													
Waterville	1,260	1,273	1													
West St. Paul	1,830	2,660	1													
Willmar	3,409	4,135	1													
Winona	19,714	18,583	22	5		1							1	1	3	
Winthrop	813	1,043	0													
Worthington	2.386	2.385	2													

REPORTED FROM 54 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia
Adrian	1,258	1.112	2												2	
Aitkin	1,719	1,638	3	1									2			
Akeley			1								1					
Appleton	1,184	1,221	2			1										
Belle Plaine	1,121	1,204	0													
Biwabik		1,690	2													
Bovey		1,377	2											2		
Browns Valley	721	1,058	2													
Buffalo	1,040	1,227	2			1										
Caledonia	1,175	1.372	0													
Cass Lake	546	2,011	0													
Chisholm		7,684	3			2										
Coleraine		1,613	3													
Dawson	962	1,318	0													
Delano	967	1,031	3	1				1								
Farmington	733	1,024	1	1												
Fosston	864	1,055	0													
Frazee	1,000	1.645	2			1										
Glenwood	1,116	2,161	1			1										
Grand Rapids	1,428	2.239	1													
Hibbing	2,481	8,832	9			2										
Jackson	1,756	1,907	0													
Janesville	1,254	1,173	0													
Kenyon	1,202	1,237	0													
Lake Crystal	1,215	1,038	1			1										
Long Prairie	1,385	1,250	2	1										1		
Madelia	1,272	1.273	0													
Milaca	1,204	1.102	0													
Mountain Lake	959	1.081	0													
Nashwauk		2,080	0													
North Mankato	939	1.279	1													
North St. Paul	1,110	1.404	0													
Osakis	917	1.013	1													
Park Rapids	1,313	1,850	2													
Pelican Rapids	1,033	1.019	1													
Perham	1,182	1.376	2												1	
Pine City	993	1.258	0													
Plainview	1,038	1,175	1													
Preston	1,278	1,193	0													
Princeton	1,319	1,555	1													
St. Louis Park	1,325	1,743	0													
Sandstone	1,189	1.818	1	1												
Sauk Rapids	1,391	1.745	3			1								1		
South Stillwater	1.422	1.343	3	1		1										
Springfield	1,511	1.4°2	0													
Spring Valley	1,770	1,817	5												1	
Wadena	1,520	1.820	0													
Wells	2.017	1.755	*													
West Minneapolis	2,250	3.022	2			2										
Wheaton	1.132	1.300	1													
White Bear Lake	1,288	1.505	2			1										
Windom	1,944	1.749	0													
Winnebago City	1,816	2.555	2			1										
Zumbrota	1,119	1,138	1													
STATE INSTITUTIONS																
Fergus Falls, Hospital for Insane			7	3												
Rochester, Hospital for Insane			12	3												
St. Peter, Hospital for Insane			5			1										
Anoka, Asylum			2	2												
Hastings, Asylum			2		1											
Faribault, School for Deaf																
Faribault, School for Blind																
Faribault, School for Feeble Minded			6	5		1										
Owatonna, School for Dependents																
Stillwater, State Prison																
St. Cloud, State Reformatory																
Red Wing, State Training School																
Minneapolis. Soldiers' Home			3													
OTHER PARTS OF STATE			688	56	12	72	10	4	1	2	11	1	3	38	31	7
Total for state			1584	166	32	186	21	10	1	3	17	1	16	62	94	13

*No report received. **Registrar** not doing his duty.

213 stillbirths and premature births not included in **above totals.**

Strength From Food

depends, as physicians and nurses well know, **not** upon the amount of food eaten, but the amount the system is able to appropriate.

In cases of weakened digestion from acute or chronic disease—or from the daily use of indigestible or antagonistic combinations of food—the proper regime obviously is to

BUILD UP DIGESTIVE POWER

and interdict unwholesome dietetic combinations.

Many physicians, from careful experiment and observation, have come to recognize in the well-known food—

Grape-Nuts

a ready and effective means of accomplishing the above in a safe and agreeable manner.

In making Grape-Nuts, wheat and barley (malted) are ground into flour; mixed with pure artesian water, yeast and a "pinch" of salt; allowed to remain in a **warm** room until the **diastase** and **yeast** have converted a large portion of the **starches** into **dextrin** and **sugar**. This mixture is then made into dough—moulded (by sanitary machinery) into huge loaves—baked, sliced (by machinery)—**again** baked until sterilized and rock-hard—then crushed into the golden granules of appetizing, wholesome food of the commercial packages.

Grape-Nuts scientifically solves the problem of how, in the quickest, surest manner, to obtain *strength from food*, under even the most adverse conditions.

The *Clinical Record*, for Physicians' bedside use, will be sent on request to any Physician who has not yet received a copy, together with samples of **Grape-Nuts, Postum** and **Post Toasties** for personal and clinical examination.

Postum Cereal Company, Limited, Battle Creek, Mich., U. S. A.

PUBLISHER'S DEPARTMENT

OAK LEIGH SANITARIUM

The announcement of the above institution, made in another column, is interesting as showing the educational equipment of the institution. As our readers know, it is located on one of the most beautiful lakes in the West. It is conducted by a woman physician and has an active consulting board of distinguished physicians. It is, no doubt, one of the most progressive institutions of the kind in the country, and furnishes an unexcelled treatment and care of a class of patients not easily provided for.

THE PACIFIC WASSEMAN LABORATORIES

Our far western readers will find on another page an interesting announcement of the above laboratories, which have a recognized standing on the Pacific coast. The public laboratory is doing a great work for the medical profession, and, fortunately, most of these institutions are in the hands of high-grade men, who ask moderate fees for their work and do their work conscientiously.

MEDICAL PROTECTION

The Medical Protective Company of Ft. Wayne, Ind., sets forth in its advertisement on another page, ten reasons why its policy is the best written for the protection of medical men against malpractice suits. These ten reasons seem to show that the policy of the Company covers every point that is essential or even desirable in a policy.

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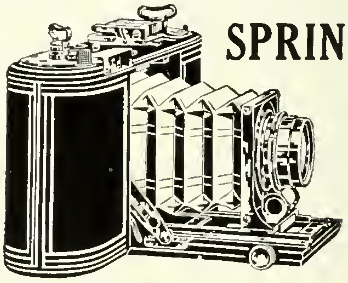

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SUGGESTIONS TO MEDICAL EXAMINERS FOR LIFE INSURANCE*

By Henry Wireman Cook, M. D.
MINNEAPOLIS

I do not feel that any apology is necessary for bringing to your attention a subject which is rapidly becoming a more scientific and exacting specialty, and which refers to a line of work that is remunerative to, and should interest, a large majority of the physicians of this state. As examiners for old line insurance companies are selected almost exclusively from members of the county and state societies, it is particularly pertinent to present here the requirements of the work from the company's point of view. If, in the course of a frank presentation of this viewpoint, I am compelled to emphasize the inferiority of the service which insurance companies are receiving from many physicians, you will understand that I am interested not only as an officer of an insurance company in obtaining better service, but, as a member of the Minnesota State Medical Association, I am deeply interested in the raising of our professional standards and am jealous of the esteem in which we are generally held.

During the past few years of the transition period through which medicine is now passing in this country we have heard so much of quacks and charlatans, unjustifiable surgery, the prescribing of patent and proprietary medicines, fee-splitting, the ignorant and dishonest practitioner turned out by our many inferior medical courses, and the disgraceful sanitary conditions in most of our cities, that a tinge of pessimism has darkened much current medical literature, as well as lay opinion on this subject. The private expressions of different medical directors who have had some glaring evidences of carelessness or ignorance from their examiners, which perhaps has cost their companies tens of thousands of dollars, would not tend to clarify the atmosphere. Yet I believe that this awakening, as a result of the widespread, often unjust, criticism, rude as it has been, when rightly interpreted is the brightest feature in our medical history, introducing a new era which shall bring medicine closer and closer to our ideals,—the ideals of Sydenham. The evolution of the higher standard of future medicine follows naturally from the recognition of our past faults and errors. One of the most signal acknowledgments of the improvement already accomplished is the necessity for protective organization on the part of the worst elements of medicine or pseudomedicine, as exemplified in the leagues and societies formed in opposition to legitimate medicine.

Here in Minnesota we are justified in an abundant optimism, based principally on the status of our medical education, which, now under the absolute control of our University, is unexcelled. Yet even here our loyalty and optimism must be tempered by an admission, *entre nous,* that there is still scope for wholesome ambition.

I believe that the influence of life insurance requirements in examinations is one of the most potent incentives towards a higher average standard among our general practitioners. When we realize that there are about 250 insurance companies in this country, each employing from several hundreds to many thousands of examiners, and that they are continually reviewing their lists, substituting better physicians for those found incompetent or dishonest, and attempting, by daily correspondence, monthly bulletins, and through organization of examiners, to educate and instruct their physicians in their duties as examiners, we can begin to appreciate the extent of this influence.

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* Read at the 43d annual meeting of the Minnesota State Medical Association at St. Paul, Oct. 5 and 6, 1911.

Practically all insurance companies have conscientious and well-trained medical supervision. The discriminating influence of monetary consideration is nowhere better shown than here. Men will pay little attention to the training and experience of the "doctors" to whom they entrust the health of their families, but when they wish to make money out of a stock insurance company or desire dividends from a mutual company, they seek their medical advice with the same care that is used in selecting actuarial or legal guidance. I know of no insurance company which uses other than regular physicians at the home office. Greater care is constantly being used in the choice in each community of the chief examiner, and the requirements for the position are being raised. His work is carefully and critically followed, year by year, and the actual results obtained through the guidance of his care and ability are definitely known. It is, then, no little compliment in larger communities, where a selection of examiners is possible, for companies to obtain and prefer the services of one physician.

It has been said, with bitterness, perhaps with envy, by members of other professions that physicians bury their mistakes. No such oblivion is possible for the medical mistakes in life insurance. Each expression of opinion from the examiner, as well as from the director, becomes a matter of permanent record, which is promptly forthcoming where the future demonstrates an error.

Selection in the beginning of life insurance was a farce. Applicants were passed upon after inspection by a board of laymen. This farce is continued today by certain examiners, but is apt to end tragically, at least as far as further fees from insurance companies for those particular examiners are concerned. The "sink test" as a urinalysis, and a physical examination without the formality of removal of the overcoat, are distinctly unpopular and examiners who employ such methods are being rapidly eliminated. The dishonesty and ignorance which underlie the service of a poor examiner, sooner or later, become apparent in one or more ways, and he is quietly dropped, and he finds it difficult to obtain other appointments.

Beginning with little more than an inspection of an applicant by the examiner, companies have gradually come to expect a fairly complete clinical history and a thorough physical examination, supplemented by a recommendation of the applicant for the policy applied for. This requirement demands a knowledge of history-taking, the ability and practice necessary for a thorough physical examination, and, in addition, sufficient general knowledge of insurance data to correlate the history of the case and the physical examination with the habits, occupation, social status, financial standing, and insurable interest, so that an intelligent prognostic opinion may be possible.

While the requirements of the position are each year more exacting, the appointment of chief examiner for one or more old line companies is more in demand by well-trained physicians. Companies are insisting on the priority of the chief examiner for all examinations made in his territory, and his income is materially enlarged from this work. He occupies a position of trust, and, during the continuance of conscientious service, is assured of the loyalty and confidence of his medical departments. He soon realizes that good standing with one company is of material advantage in obtaining other appointments. There is, furthermore, a distinct tendency for a layman to respect the ability of a physician whose examination is insisted upon by the company from which he elects to buy his protection. He is inclined to trust the judgment of the company and to prefer as a medical attendant the physician whose ability and honesty are so recognized.

It may properly be further emphasized that the examiner should not consider the mere fee as the entire return which he receives for his work. I feel strongly that the routine of history-taking and examination as required in an insurance-blank is distinctly beneficial to the general practitioner. Few general practitioners take a detailed case-history and make permanent record of their physical examinations, yet we must admit that this is essential to accurate diagnostic work, and therefore to proper therapeutic service. The importance placed upon such work by insurance companies who have only a financial interest in view, furnishes a valuable object lesson to a similar need in practice. All clinical teachers believe that the orderly array of facts obtained from a proper history is essential to a logical analysis and cleancut diagnosis. The training in insurance work along this line must be helpful to the overworked practitioner who, in his twenty-minute visits, uses less and less of the methods of his rapidly receding training as student and interne, and more and more snapshot diagnosis and symptom-therapy.

Nor is prognostic ability on the part of the physician the least part of his value to his patients. His counsel and advice are largely influenced by the prognosis in the case, and nowhere can he obtain such help in prognosis as from insurance statistics. Many medical schools recognize the important part which insurance examinations play in the practice and income of practitioners, and give a course on this subject to better fit their students for this duty. But a knowledge of insurance statistics is of great value to every physician, whether he is ever called on for an insurance examination or not. An expression of opinion as to the probable expectancy of an individual case, or the prognosis, is influenced by many other factors than the disease which the physician has diagnosed. Knowledge of the evidence which insurance companies have gathered and systematized on the basis of actual experience in many thousands of similar cases, is far more definite than the clinical experience of any individual, and is thus a valuable supplement to a clinical prognosis.

The examination-blank increased in detail and number of questions until within the past few years. This was an attempt to offset the inexperience and lack of training in the examiner by a multitude of questions. The signs of disease were evidently overlooked; the alternative was to select on the basis of family history and personal symptoms. More recently, perhaps through greater confidence in the present-day physician, there is a tendency to simplify the blank and depend more and more on the examiner's intelligence and ability. The questions asked of the applicant show less detail; the requirements of the physical examination are more exacting.

In spite of the illiteracy, the carelessness, the lack of medical knowledge, or common sense, the occasional dishonesty which pass over the desks of different medical directors daily,I think we are fully justified in feeling that better and more conscientious examinations are obtainable today than ever before. It is most encouraging to find in how many small towns, particularly here in the Northwest, that the work of the local examiner shows a knowledge of the business and medical requirements of life insurance, and the necessary scientific training for a thorough physical examination and competent urinalysis.

It is unnecessary, and in the space of this paper impossible, to review in detail the questions of a modern insurance-blank. Most of the questions asked by the examiner of the applicant are explicit and need no elaboration. The need for the examiner to furnish full explanations in regard to every illness or impairment cannot be too strongly emphasized, as it is the most frequent cause of unnecessary correspondence and annoying delays. If a man says he was treated by Dr. Smith for biliousness or indigestion six months ago, a full explanation is absolutely necessary, with a statement, if obtainable, from the attending physician. We all know that a layman speaks vaguely of "indigestion," "cold," "biliousness," etc., as a satisfactory diagnosis for any number of conditions, varying from a trivial period of constipation or coryza to gall-stones, advanced phthisis, or even carcinoma. It is obviously impossible to accept an applicant's diagnosis without inquiry as to symptoms and course, or without a statement from the attending physician. The necessity for these details is stated in every examination-blank, yet over and over again examiners will send in such vague statements without explanation or evidence of investigation.

The physical examination proper could be roughly divided into four essential parts. For a five-dollar fee and in thirty minutes' work at a single examination, it cannot be expected that leukemia, carcinoma of the rectum, tubercular enteritis, and a host of the less common diseases, can be positively excluded. It does not seem unreasonable, however, to expect that an applicant who has been unreservedly recommended, should have the general appearance of average good health; that his lungs should show no evidence of active disease; that the cardiovascular system should be approximately normal in structure and function; and that the kidneys are not excreting albumin and sugar. These four items, then, are practically the only requirements of the insurance examination except, in some blanks, temperature and reflexes; and yet the number of applicants with phthisis, cardiovascular disease, and nephritis, who are unreservedly recommended, is attested by the mortality from these diseases among early entrants to all companies.

An unhealthy or under-standard general appearance is frequently neglected by an examiner. He is intent upon the discovery of definite signs of disease, and his negative physical findings are apt to unduly offset the general impressions which he may have formed at first sight; or he may have entirely overlooked the pallor of anemia, the slight cyanosis of faulty circulation, the sallowness of interstitial nephritis, the wrinkles from recent loss of weight, etc. An applicant who looks sick or frail should not be recommended as a first-class risk merely because the examination reveals no definite signs of disease. It does not reflect credit on an examiner to have a weak or delicate general appearance reported by a lay inspector of a risk which he has unreservedly recommended.

The examination of the lungs is perhaps the most unsatisfactory portion of the average examiner's report. The cause of this is twofold: First, evidence of pulmonary disease is often vague and sometimes, even in advanced stages, entirely lacking; secondly, the interpretation of pulmonary findings demands more skill and experience than is required by any other physical signs. When we realize that arrested cases of even advanced phthisis may show no adventitious sounds nor any change in percussion resonance, when the lungs in a recent case of hemoptysis may appear normal, and when a suspected case of incipient phthisis may undergo repeated clinical examination before any abnormality is positively identified, we can realize that there is excellent excuse for the recommendation of a certain proportion of the tubercular applicants. But, with all due latitude for the difficulties of the latent and incipient cases, the large proportion of tubercular applicants accepted each year can be accounted for only by carelessness or inexperience on the part of the examiner. Failure to remove the clothing over the chest, a step so essential in any physical examination, is accountable for some of the cases insured. A quiet room and a proper light are also necessary. How often careful inspection guides our attention to the diseased area.

There should be a certain minimum requirement recognized by every examiner for the different portions of the examination. Quiet, bright light, and sufficient removal of clothing, are *primary* essentials. In the pulmonary examination there should be percussion over at least seven different areas on each side, comparing the two sides, step by step, above and below the clavicle, and at the 2d intercostal space in front, in the axilla, and three areas in the back. One of the best guides to involvement of the apices is to have the applicant breathe deeply during percussion above the clavicle, noting whether the lung moves freely or appears restricted by pleural adhesions. This evidence of inflammatory changes at the apex should be sought for in every case. Careful auscultation over the same areas, at least through one whole phase of respiration, should follow percussion, and particular attention should be paid to the detection of râles or a prolongation of expiration. This procedure would not take over five minutes, and is certainly a reasonable requirement before an examiner should be willing to pronounce the lungs negative. A suggestive personal or family history, an elevation of temperature, a respiration-rate above 20, would lead us to more minute detail.

The cardiovascular examination is second in importance only to the urinalysis, as a single guide to insurability. It is far easier in its essentials than a pulmonary examination, and far more definite in its indications. A thickened artery, a heart-murmur, a displaced apex and increased area of cardiac dullness, an abnormal blood-pressure, are some of our most definite clinical signs, and should be positively excluded in every insurance examination.

Estimation of the pulse-rate should begin the examination; 60 to 90 are the usually accepted normal limits. Below 60 we think of increased resistance and would look for high blood-pressure and cardiac hypertrophy; above 90, after nervousness is eliminated as far as possible, we would look for evidence of hyperthyroidism or some cardiovascular weakness. After counting the rate we should gauge the vascular material, using both hands on the radial, and estimating the thickness and hardness of the artery after obliteration of the blood-stream. The tactile impression of pulse-tension, also obtained in this way, should be confirmed by the use of the sphygmomanometer.

The cardiovascular system is very accessible to methods of examination, and it is most important that we should take advantage of this fact. Furthermore, we must remember that this system is uninterrupted in structure, and that a thickening and sclerosis of the radial is apt to reflect a similar degenerative change in cerebral vessels, aorta, heart, and kidneys.

Now that we have in a readily portable form a practical instrument for the accurate estimation of pulse-tension, there is no occasion for an apoplexy or acute cardiac dilatation to bring discredit upon an examiner shortly after the acceptance of the applicant. An estimation of blood-pressure is the most important of the late requirements in insurance examinations, and I would like cordially to commend this sign, as well as the question on arterial thickening, to your earnest attention. Of 58 insurance companies having over ten million dollars of insurance in force, 51, or 88 per cent., require the blood-pressure. Within a few years probably all companies will ask for the blood-pressure in their blanks. The use of the sphygmomanometer has become too definitely established as one of the most important clinical aids to correct diagnosis and proper treatment of cardiovascular disease to permit any general practitioner to omit the instrument from his armamentarium. An estimation of pulse-tension gives us the best single guide to variation of cardiovascular function. All clinical teachers deny that tactile impression of tension can be as accurate as manometric measurements. The use of the instrument is simple, taking only a moment or two, so that the requirement of this test in insurance work should not be beyond the power of any examiner. In addition to the unfavorable inference which can be drawn from high tension, of which recent medical literature abounds, much attention is now being directed to cases showing abnormally low tension. Lowered resistance to infection, especially illustrated by the incidence of tuberculosis, is characterized by low tension, which of course, may be due to cardiac weakness, or impaired vascular tone, or both. One hundred and five mm. mercury to 150 mm. mercury are generally accepted as the minimum and maximum blood-pressure for insurable ages., i. e., 18 to 60 years.

In the cardiac examination, sitting facing the applicant, who in turn faces a bright light, we should look for any abnormal pulsation, any bulging, especially over the precordium, and any dilated veins. The apex beat should then be definitely located, any displacement to the left being particularly important. The visible or palpable apex should be confirmed by auscultation, and murmurs attentively listened for at apex, 2d right costal cartilage, and down the left border of the sternum. We hear much of cardiorespiratory and functional heart-murmurs. It is interesting in this connection that the experience of one company has been as unfavorable on "functional" heart-murmurs as on "organic." There are undoubtedly, "functional" murmurs which might be negligible in an insurance examination, but the above experience shows that the tendency is to give the applicant the benefit of the doubt in a doubtful case. As attending physicians we are too apt to associate organic heart-murmurs with some sign or symptom of incompetence; and as examiners we are too prone to call "functional" a soft murmur at the apex, without appreciable hypertrophy, in a robust, active young man. If there is a murmur of any kind made out, it should be fully noted, and the notation supplemented by the opinion of the examiner as to the kind of murmur or its importance. An unduly accentuated second sound or a reduplication should be faithfully reported. No cardiac examination should be considered complete without a definite attempt to determine the left border of relative cardiac dullness. Where the dull note extends beyond normal limits this fact should be definitely stated. Increased area of cardiac dullness, showing either hypertrophy or dilation, is associated with so many serious conditions that its recognition is of paramount importance.

With this brief outline we come to the most important single feature of the average examiner's report. By means of a urinalysis the average examiner can detect a condition of impaired health more frequently and more definitely than by any other portion of the examination. Some discoverable abnormality shown by the urinalysis is probably associated with more conditions of impaired health than any other sign. Excluding diabetes and primary parenchymatous nephritis, which in themselves constitute a large group, we have the low specific gravity of diabetes insipidus and interstitial nephritis; the bloody urine of pernicious malaria, renal and vesical calculus, tuberculosis and carcinoma of the genito-urinary tract; the decomposed urine of hypertrophied prostate and cystitis; the pus of an inflammatory condition of the tract; and, lastly and most important, the albuminuria of febrile conditions, of chronic pus absorption, of arteriosclerosis, or any serious toxemia,—i. e., chronic tuberculosis, alcoholism,—in fact, few serious diseases are not associated with the excretion of at least a trace of albumin. The effect of any of these agents in producing albumin is increased with advancing years as the structural changes of age develop.

In spite of the fact that some abnormality discovered in the urinalysis is the most frequent impairment noted by the average examiner, it is astonishing how often such abnormalities, especially smaller amounts of albumin, are overlooked. The inability of general practitioners to find albumin probably brings their work into disrepute more frequently than does any other requirement, and yet the detection of albumin is not really a difficult matter. I think medical instruction must be largely at fault in this matter. The average practitioner seems satisfied in stating that albumin is absent if a white ring does not promptly appear when he pours some urine on nitric acid, or if no white cloud shows in the boiled urine after adding acid, and yet he may look for the cloud from where he stands beside the table or sink at the back of the room. Unless albumin is present in large amounts, such methods will not reveal its presence.

That the methods in general use among physicians do not detect albumin is shown by the following figures. My company has required that specimens of urine be forwarded to the home office for examination in certain cases. Of the last 197 of such cases in which we found albumin, 37, or 18 per cent., were reported by the examiner as showing albumin. In other words, in 160 of the cases, or 82 per cent., controlled by the home office examination, albumin was not found by the examiner. In the majority of these cases albumin was present only in small amounts, and was associated with a few hyaline and granular casts. Nearly all were in men over 45 years of age, and a clinical diagnosis of beginning interstitial nephritis would probably have been established by a thorough examination in most of the cases.

Under such methods as will ordinarily be applied by the general practitioner, I believe Heller's test is unsuited to insurance purposes. With proper dilution, proper light, and sufficient time and care, albumin in small amounts can be detected by this test, but, hurriedly and carelessly made, the results are most unsatisfactory. The heat and acid test is more delicate and its indication more positive. This should always be applied as described by Purdy, boiling the urine after a few c.c. of saturated salt solution has been added to prevent precipitation of mucin. Ulrich's ingenious modification of the Purdy test has proved, in our experience, the simplest and safest test for traces of albumin. A stock saturated salt solution to which about 1 per cent. of its volume of acetic acid has been added, is the only reagent necessary. A couple of c.c. of the solution is boiled and while boiling-hot is carefully overlaid with the urine. When examined in a bright light against a dark background, the presence of albumin is indicated by a white line at the point of contact. The simplicity and delicacy of this test commend it, particularly for the use of insurance examiners.

This is not a proper place for a discussion as to the significance of albumin or the frequency of "physiological" albumin. It is, however, a significant commentary that no insurance company will accept at standard rates a risk showing persistent albuminuria.

This paper is admittedly fragmentary, and is merely meant to be suggestive and perhaps helpful to the many physicians of this association who aim to give conscientious and increasingly valuable service to the insurance companies from which they accept appointments.

THE TREATMENT OF SCLERITIS WITH TUBERCULIN*

By Charles Nelson Spratt, B. S., M. D.

MINNEAPOLIS

Scleritis, known in the superficial form as *episcleritis,* is a disease essentially chronic and is characterized by exacerbations and remissions, absence of ulceration, and a tendency to spontaneous cure. It occurs in young adults in apparently good health. It is more frequent in women than in men. At the onset, pain is slight or absent. If the iris or ciliary body is involved the pain is often severe. Lachrymation is profuse; photophobia and the sensation of a foreign body are often complained of.

The lesion first appears between the limbus and the equator, from 3 to 7 millimeters from the former, as a circumscribed hyperemic patch which swells into a prominence, several millimeters in width. On account of the injection of the deep vessels it soon assumes a violaceous tint. The prominence is hard, smooth, rounded, and is frequently very sensitive on pressure. The disease is limited to the anterior segment of the eye.

The location of the swelling is usually on the superior part of the sclera. In 62 cases showing 66 lesions, Verhoeff found 24 above the cornea;

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* Read at the 43d annual meeting of the Minnesota State Medical Association at St. Paul, Oct. 5 and 6, 1911.

15 on the superior temporal side; 12 on the nasal; 7 on the temporal; 5 on the superior nasal; and 3 on the inferior side. The disease may extend so as to involve the entire ciliary region.

The prominence after a time slowly subsides and disappears, often without leaving any trace, or its place is taken by a grayish or dark discoloration, due to thinning of the sclera. In the protracted form, cyclitis and serous iritis are frequent complications. The cornea is often involved by an interstitial infiltration, either wedge-shaped, with its base at the sclera-corneal margin, or by separate, more or less discrete, and confluent areas. This condition is generally described as sclerosing keratitis. No hypopyon is ever present. Frequently, one or more round phylectenule-like masses, from 1 to 3 millimeters in diameter appear on the sclera at points 8 to 5 millimeters from the limbus.

Scleritis may lead to the formation of corneal opacities, seclusiopupillæ, myopia, and anterior staphyloma, due to thinning of the sclera.

Etiology.—Scleritis is generally classed with those diseases of obscure origin. Cold, scrofula, gout, lues, gonorrhea, tuberculosis, rheumatism, and menstrual disturbances have each been given as the causative factor, the last two being considered of special importance.

Histologic examinations have thrown faint light on the etiology. The infiltration is largely due to lymphocytes, polymorphonuclear leucocytes, and epithelioid cells. Occasional giant cells surrounded by plasma cells and lymphocytes, have been described by Verhoeff. The infiltrating cells between the lamellæ may extend forward into the cornea, causing sclerosing keratitis, or backward into the ciliary body. The blood-vessels are increased in size and number. No caseation or tubercle bacilli have been observed. The small nodules described as appearing over the ciliary region are localized areas of edema.

Following the publication of Koch, in 1890, on the therapeutic use of tuberculin, numerous cases of disease of the eye were treated with the new remedy. Wagner[2], in 1891, reported a case of scleritis, cured in six weeks by injections of tuberculin $\frac{1}{200}$ to 3 mg. The patient gave both a general and a local reaction to tuberculin. A second case in which both a local and general reaction were obtained, is reported by Czermak in the discussion of von Hippel's paper.

Von Hippel[3], in 1904, reported a case of severe scleral tuberculosis and corneal nodes absorbed by injections of $\frac{1}{500}$ to $\frac{1}{5}$ mg. of tuberculin. Recurrence and cure followed after more injections. He did not state that a reaction was obtained. In the discussion of von Hippel's paper, Sattler reported treating two cases of episcleritis with tuberculin (T. R.).

Verhoeff[1], in 1907, reported 13 cases of scleritis, all of which gave a positive general, and 9 a local, reaction after injections of $\frac{1}{10}$ to 10 mg. of old tuberculin. In this paper he states that he believes all cases of scleritis or episcleritis to be tuberculous in origin.

Derby[5], in a complete historical review of the use of tuberculin in ophthalmology, includes a report of 14 cases of sclerokeratitis treated with bouillon filtrate (B. F.). The maximum dose was from $\frac{7}{1000}$ to 5 mg., and the number of injections 10 to 25. Ten of these gave a general, and seven a local, reaction to tuberculin. Six cases of kerato-iritis and nine cases of interstitial keratitis were also reported, in which tuberculin was used with satisfactory results. Two cases of the former group and four in the latter gave both general and local reactions.

Scleritis is probably always secondary. We know how frequently the tubercle bacillus may remain dormant in the body and suddenly light up a fresh focus. It is not unlikely that a tonsil or a bronchial gland may be the primary focus in many cases. Stock[6] thinks that scleritis is an extension from a metastatic focus in the uveal tract.

From the histologic finding in a case of tuberculous cyclitis, Verhoeff[7] advances the theory that in scleritis, the infection reaches the sclera through the filtration-angle. "The infecting bacilli are derived chiefly from the superficial vessels of the ciliary processes, and are carried in the aqueous humor to the filtration angle. Whether there are always small initial foci on the surface of the ciliary processes, or whether the bacilli, contained probably in phagocytic cells, are exuded through the intact pars ciliaris retinæ, is uncertain. In tuberculous keratitis the infection is also from the aqueous humor, the cornea becoming infected either by metastasis or extension from foci about the filtration-angle, or from a preceding scleritis. Two forms of tuberculous cyclitis are to be distinguished, namely, the interstitial and the superficial. Interstitial cyclitis is usually secondary to scleritis, and due to direct extension of the latter. Superficial cyclitis occurs, as a direct blood-metastitis.

Clinically, it manifests itself as one of the forms of serous cyclitis."

Method of diagnosis.—The patient's temperature should be taken every two hours for one or two days. If there is no fever, one milligram of old tuberculin is injected subcutaneously, the temperature still being taken every two hours. A general reaction is obtained if the temperature reaches 100.5° with malaise, chills, and redness and swelling about the point of injection. A local reaction is shown by increased injection of the conjunctival blood-vessels, lachrymation, photophobia, sensation of foreign body, and pain.

As sometimes the symptoms are severe a small initial dose is recommended. If there is no reaction, three days later two mg. tuberculin is injected. If again there is no reaction, the dose is increased to four, then six, and finally to ten milligrams, at intervals of three days, until constitutional symptoms occur and the temperature reaches 100.5°. A local reaction in the diseased eye, is essential for a positive diagnosis.

As to the safety of tuberculin as a diagnostic aid, all are agreed that in small cautiously increasing doses, it is practically without danger. Tinker[8] has reported over 400 cases with no untoward results.

Treatment of scleritis.—As in the treatment of other forms of tuberculosis, feeding, fresh air, rest, and injections of tuberculin are indicated. Local use of atropin, dionin, and fomentations are indicated.

Tuberculin.—It is still an open question as to which tuberculin is the best. Verhoeff used the old tuberculin (T. O.). Derby used in his cases the bacillus emulsion (B. E.). It is generally thought the emulsions (B. E.) or vaccines (T. R.) containing dead bacteria are less uniform in dosage, and are likely to cause more severe reactions than are the filtrates containing the soluble toxines, as Koch's old tuberculin (T. O.) and Denys' bouillon filtrate (B. F.). In the light of the recent report of the British Royal Commission on Tuberculosis[9], the human strain is preferable to the bovine, their finding being that the bovine type of tuberculosis is rare in human beings, except in intestinal tuberculosis in children.

Dose.—Those who believe in the theory of specific bacterial immunity or vaccination, use the tuberculin in sufficient doses to cause slight reaction, at long intervals. In several of our cases an improvement in the eye condition followed the reaction produced by the diagnostic dose. This has been observed by others in eye tuberculosis, lupus, and tuberculous laryngitis. Verhoeff believes in causing slight reactions, as the patients are always in good health and the lesions show no tendency to caseation or ulceration. On the other hand, if the curative action of the tuberculin depends on an acquired immunity to the toxine of the tubercle bacillus, a reaction is to be avoided, as it is an evidence of intolerance, and no immunity is produced. This latter theory is the one more generally accepted.

In two of our cases Denys' bouillon filtrate was used, the initial dose being $^{1}/_{1000}$ mg. In the other five the bacillus emulsion was used, with an initial dose of $^{1}/_{10000}$ or $^{1}/_{1000}$ mg. The dose was slowly and carefully increased, avoiding as far as possible signs of general or local reaction. Any redness about point of injection or rise of one-half degree in temperature was considered an indication that the point of intolerance was reached. The dose was not increased and was not repeated until the temperature was normal for forty-eight hours. The temperature was taken every four hours. The injections were given in most cases twice a week. As a matter of convenience, each of our cases received the injection in the arm. The skin having been thoroughly cleansed with alcohol, the injection was made subcutaneously with a glass syringe, with asbestos packing.

During the past year we have treated one case of episcleritis and six cases of keratoscleritis with tuberculin. Five of the patients were women, and two were men. The ages of the former were between 31 and 38 years. One man was 43, the other was 55 years of age. The right eye was the one affected five times, and the left eye twice. Two of the patients had had previous attacks in the other eye. All were in good health except one who had lost weight, another had had glands of the neck removed ten years previously.

The location of the scleral infiltration was as follows: 2 on the temporal, 2 on the superior temporal, 1 on the nasal side, 1 above and 1 below the cornea. In three of the above cases the entire anterior portion of the sclera became involved later. All the patients gave a general reaction to Koch's old tuberculin, one with 1.5 mg., two with 2 mg., three with 4 mg. and one with 10 mg.

The lowest febrile reaction was 100.2°, the highest 102.6°, the control temperature before injection being normal in each. A local reaction was obtained in six cases. The maximum reaction was twelve hours after the injection in two cases, and 36 in another, and an average of 24 in the others.

One severe case was cured in six months after having had 45 injections, the maximum dose being 20 mg. bouillon filtrate. A second severe case of ten months' duration was cured in three months after 22 injections, maximum dose 150 mg. of bacillus emulsion. A third case of seven weeks' duration was cured in ten weeks after 20 injections, the maximum dose being 150 mg. A fourth case under treatment with onset of trouble eight months previously and under treatment three months, has received 26 injections and is improving. A fifth case of five months' duration treated with B. E. was cured in three months with 18 injections, the maximum dose being $\frac{1}{100}$ mg. A sixth case of eight months' duration was much improved after the diagnostic dose of 10 mg. of old tuberculin. He was sent home to have the treatment continued by his physician. The seventh case, one of episcleritis of one month duration, is still under treatment and is improving.

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X-RAY NOTES

By George Earl, M. D.

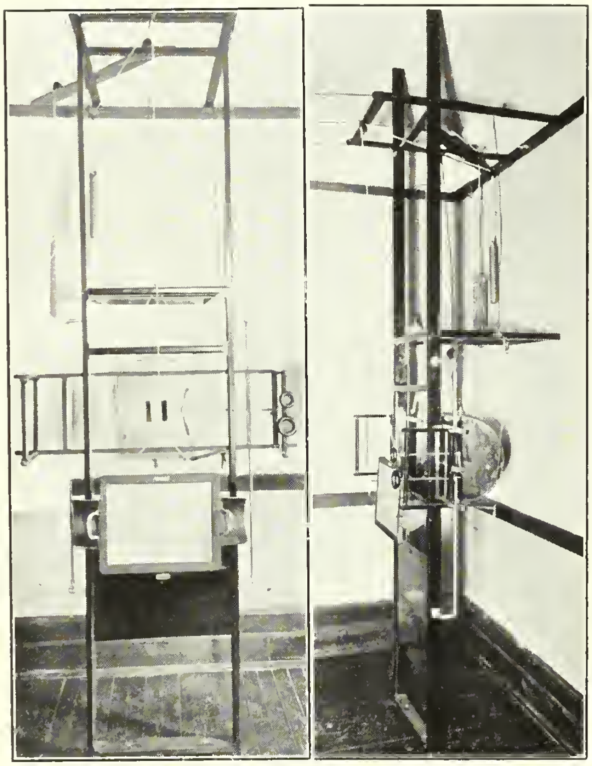
ST. PAUL

The question of dose in x-ray treatments is primal. All things being equal, the closer the patient is to the tube, the more light is given. The strength of the light is in proportion to the distance from the center of the focus to the skin; for instance, an exposure of one minute at four inches from the focus point is equal to an exposure of four minutes at eight inches. The rays spread like a pyramid, hence with increasing distance fewer rays strike each part of the skin. The strength of the light is of as much importance as the time of exposure or the distance and the milliamperemeter or the appearance of the tube cannot be relied upon for this. The hardness or softness of a tube must be considered, for the rays from a hard tube are more penetrating. With so many factors in reckoning the dose, the value of a dose-meter is easily seen. We need some test by which we can arrive at the normal dose, that is, what the average skin can stand at each treatment.

Radiometer x (Sabourand and Noire, Paris) is the best form of dosemeter. It consists of small discs of a greenish actino-active substance placed on little pieces of paper which are fastened one-half of the distance from the focus point in the tube to the patient's skin. These discs must be at least 1 cm., or, better 2 cm., from the tube, otherwise they will heat it and cause its breakage. For instance, if the tube is 18 cm. in diameter and the disc is placed 1 cm. from the tube, the skin of the patient should be 20 cm. from the focus point. A simple way to fasten the discs is by mucilage on a cardboard bent so as to fit into the bowl of the lead protection-glass. The disc should be covered with a bit of black paper to prevent the daylight from acting in opposition to the x-rays. The greenish color of the disc is reduced to brown. For comparison there is furnished a test-scale, the green and the brown colors of which are permanent and nonchangeable in any light. The green disc used is tested from time to time and when the brown of the scale has been reached, the normal or average dose, which a patient can stand without injury, has been given. After a little experience one does not have to test more than once or twice during a treatment. The comparison between colors must be made in the daylight, as artificial light does not give the correct color. Each disc can be used three times if placed in the sunlight for one-half hour, which reduces the brown color back to the original green. The placing of the disc or cardboard in the way of the rays does not influence the treatment or interrupt the rays.

The effect of an x-ray treatment lasts two or three weeks. We cannot tell what effect a dose has until after eight or eleven days. This shows the folly of trying to give small doses of x-ray, say, every two or three days. The only safe way is to give one dose every three weeks, and measure it by the disc. A normal dose may cause atrophy of the skin if repeated several (six or seven) times, and the patient should be warned of this probability.

In *x*-ray dermatitis we have first, second, and third degree burns. If we give two normal doses at one sitting we get an erythema of the skin. This usually appears about eleven days from the time of the treatment. From three normal doses at one sitting, blisters will form after eight days. These will break open and heal without a scar. If a still larger dose, say, four normal, is given the skin will blister and then become white. The white spots will slough off and leave an ulcer, which will heal, but will become atrophic with thin skin. Dr. Bock of Norway has given a formula known as Bock's liniment for *x*-ray dermatitis.



Rx. Amyli triturati
Talci albi pulvis—āā, 50
Glycerini 20 to 25
Liquori plumbi subacetatis diluti 150 to 200
M. Sig. Apply to skin and cover with cotton.

Note.—Keep well corked and shake before using. The preparation does not keep well and should be freshly prepared quite often.

The cuts above are the front and side views of an apparatus for use in fluoroscopic work. The *x*-ray tube is in a lead-lined box with an aperture exposure both of which can be regulated from the sides. The box containing the tube is freely movable, up and down and sideways, being balanced by weights and pulleys. The fluoroscopic screen is also freely movable and balanced by weight and pulley. The wires connecting the tube are on reels, preventing obstruction to the movement of the tube. The advantage of such an apparatus over the stationary tube and the ordinary fluoroscope is marked; for instance, without changing the position of the patient, and scarcely that of the operator, the course of a bismuth meal can be followed in the process of swallowing, from the mouth to the stomach. Moreover, with the screen as opposed to the scope several people can examine the patient at the same time.

The position of plate work in radiology is assured. No one questions its value, but the fluoroscopic screen has not as yet come into its own. A few men are making use of it, but not so generally as with the plates. There are many places where a fluoroscopic examination is indicated; for instance, in intrathoracic goitre such an examination will demonstrate the gland moving up with swallowing and down with inspiration. This is an important differential point in comparison with aortic aneurism and would not be demonstrated by a plate. In the bismuth examination of a stomach we can place a hand on the abdomen and move the organ around. If the stomach is fixed in position, as from an ulcer on the posterior surface, adherent to the surrounding tissues, this point can be clearly determined, a thing difficult by the plate method. In the examination of the heart and aorta it is necessary to view the organs at different angles. An important point is that of accustoming the eyes to the dark-room necessary for fluoroscopic work. The vision will be increased 200 points by waiting in the dark-room before beginning the examination.

Our apparatus is a modification of one seen by Dr. Robert Earl in the Forsell X-Ray Laboratory of Stockholm, Sweden.

AN UNUSUAL COMPLICATION OF ACUTE OTITIS MEDIA AND MASTOIDITIS

By Carl L. Larsen, M. D.

ST. PAUL

Patient, a girl, 16 years of age, gave a history of having pain in the ears almost yearly following a severe cold, but never attended with a discharge from the ears. About December 1, 1911, following a sore throat, she was seized with pain in the left ear and within a few hours by a rather profuse discharge.

She did not experience the relief ordinarily obtained after rupture of the membranæ tympani. She stated that the pain was greatest over the mastoid and the latter very tender on touch. Not obtaining any relief she consulted the family physician, Dr. E. F. Vrooman, of St. Francis, Minn., December 14th, two weeks after the beginning of the attack.

Dr. Vrooman stated that there was considerable purulent discharge from the left ear, and that the mastoid was very tender and slightly swollen. Her temperature at this time was 102° F.

Three days later the patient returned to Dr. Vrooman, stating that the pain was worse, and that she felt very "feverish and sick." As the tenderness over the mastoid had increased and the patient appeared much worse, she was taken to a hospital at Anoka, twenty miles distant. The following morning Dr. Vrooman, with the assistance of Dr. Hagaman of Anoka, opened the mastoid tip exposing the mastoid cortex. No pus or necrosis was found.

Immediately before the operation her temperature was 101.5° F. During the next thirty-six hours her temperature ranged from 101° to 102.5°, and the pulse from 100 to 120.

About 48 hours after the operation she was suddenly seized with excruciating pain in the region of the left hip. The following day Dr. Hagaman telephoned me to see the case. I found the patient a well-nourished, robust girl, complaining of severe pain in the region of the left sacro-iliac articulation. She was unable to move herself, and shrieked with pain upon being moved. With the exception of the small area of extreme sensitiveness over the sacro-iliac joint, nothing could be elicited.

Her temperature was 102.5° and pulse 120. She complained of no pain in the ear or over the mastoid. Examination of the ear showed a small perforation in the anterior and upper quadrant of the drum through which a thick foul-smelling pus exuded. There had been no chills, and there was no tenderness over the jugular and no headache, and her mental condition was normal. A slight nystagmus to both sides was elicited, but this was attributed to the fact that the left eye was blind (from a panophthalmitis in childhood) and the right eye amblyopic.

The mouth and throat was very dry, and there was considerable redness surrounding the tonsils. Urine, chest, and abdominal examination was negative. The patient experienced no pain in any of the other joints.

I advised re-opening the mastoid and draining the antrum. Under chloroform anesthesia, with the assistance of Drs. Vrooman and Hagaman, the wound was re-opened, and the mastoid cortex leading to the antrum removed. The antrum was filled with pus and the tegmen antri necrosed to the extent of about one and one-half cm. This necrosed area was curetted away exposing the middle fossæ. There was no involvement of the mastoid cortex.

The wound was loosely packed with iodoform gauze, and the perforation in the membranæ tympani enlarged. During the next three days her temperature seemed very satisfactory. It was lower and reached normal on the morning of the third day, and the pain in the hip was less severe. On the evening of the third day her temperature rose to 104° F., and the pulse was 130, with increased pain in the hip.

During the following three days her temperature ranged from 99.5°, attaining its height in the evening. One week from the day of operation I again saw her. The mastoid wound was draining well, with scarcely any discharge from the ear. The pain in the hip was less severe, but the patient had every indication of being septic.

Fearing that further operative interference might become necessary, I advised removing her to the city. The following day she was brought to the Mounds Park Sanitarium. Drs. Robert and George Earl saw the case with me, and a diagnosis of a septic metastasis into the sacro-iliac joint was made.

A specimen of the patient's blood showed streptococci in pure culture. The leucocyte count was 11,200. Efforts at producing an autogenous vaccine failed, owing to the culture becoming contaminated.

A smear from the throat and the pus from the mastoid wound showed streptococci. Caloric tests showed both labyrinths functionating normally.

The hip was immobilized by adhesive strips, and she was given free catharisis, with 5 grains of urotropin twice a day, and proto-iodide of mercury, gr. ¼, four times a day. During the first week at the hospital the patient's temperature ranged from normal to 102.4°, pulse from 96 to 120, and the pain in the hip was less severe, with her general condition improving.

On the seventh day she was given 20 c.c. of polyvalent antistreptococcic serum, which was repeated twice, on alternating days.

Following this last injection the patient's temperature remained normal, and the pain in the hip gradually disappeared.

Three weeks after admittance the patient began walking with crutches. One week later the mastoid wound and the perforation of the drum had healed. Five weeks after admittance the patient left the hospital perfectly well. Whether or not the serum influenced the condition I cannot say, but I regret not having given it earlier.

The case is interesting in that there was only one metastatic focus, and that in a very unusual location. I have not been able to find in the literature a case where the sacro-iliac joint was singly involved.

The case presents another interesting feature, in that with the severity of the infection, it was confined to the antrum, due probably to the fact that the mastoid cortex was sclerotic.

My thanks are due Drs. Vrooman and Hagaman for permission to report the case, and I am greatly indebted to Drs. Robert and George Earl for their assistance in carrying out the treatment.

A REPORT OF FOUR SURGICAL CASES

By B. A. Bobb, M. D.

Surgeon to St. Joseph's Hospital
MITCHELL, S. D.

Case 1.—Miss R., aged 26; for the past five or six years a teacher in the Sisters' School.

Family history.—Negative.

Past personal history.—Passed successfully through the ordinary diseases of childhood. Has been well since childhood until about one year ago when she began to complain of more or less distress in the epigastrium. She did not consult a doctor, but kept on with her work until Dec. 25, 1911, when she came under my service at St. Joseph's Hospital at Mitchell, S. D.

She then complained of pain in the epigastric region extending to the right hypocondrium and appendix. She stated that when food of any kind, solid, semisolid, or liquid, was taken, it caused pain in the stomach immediately, and this pain continued for several hours. This was accompanied with bloating, eructations of gas, and occasional eructations of acid secretions. Menses, regular and painless.

Examination revealed a woman of about 110 pounds in weight, spare, somewhat anemic and weak; general abdominal tenderness, but especially so over the epigastric and right hypocondrium over the gall-bladder.

Hemoglobin, 70 per cent; blood count, negative. Gastric contents upon analysis showed normal acidity. Heart, lungs, kidneys, liver, and spleen, negative. Temperature, normal by thermometer, but she had a dry condition of the lips that suggested that there was some fever at some time during the day. No vomiting.

Diagnosis.—Probably ulcer of the stomach; possibly tubercular peritonitis.

The patient was put to bed and placed on the absolute starvation treatment for seven days, the first two days being used to get good drainage of the system with the use of calomel, castor oil, etc. The mouth and teeth were cleaned every two or three hours during this time.

After the seven days' starvation treatment a little hot milk was given, with a return of all her former symptoms.

Exploratory incision was advised. Upon opening the abdomen at a point so as to be able to investigate all the abdominal viscera, we found a pronounced tubercular peritonitis of the peritoneum of the stomach and gall-bladder and then, to a lesser extent, down on the intestine and the appendix. There were thousands of tubercular nodules from the size of a pinhead to that of a pea, considerable adhesion, and a very small quantity of fluid.

These findings so far are nothing uncommon with the exception of the fact that either the tubercular condition had its origin at or near the gall-bladder or stomach and was proceeding downward, or had its origin in the appendix, which was nearly consumed with tuberculosis, and was loosing out in these regions and was now doing its best work near and about the stomach.

An interesting feature of the case was a large diverticulum on the posterior wall of the stomach measuring three and one-half inches long and one inch in diameter, which communicated with the stomach. This was also covered with tubercular nodules.

One-half ounce of iodoform was sprinkled on the parts involved, and the abdomen was closed with a drainage-tube inserted. The tube was left in two days, then removed. The patient made a rapid recovery and in twelve days had a ravenous appetite and can eat all the simpler foods without pain. She is gaining rapidly.

We are aware that statistics show that a majority of these cases terminate fatally after a little time, but our experience during the past ten years has been very favorable. We have operated on 16 cases, all of whom have recovered and are well with the exception of one, a twelve-year old girl, who also had tuberculosis of the lungs at the time of operation as a complication, and while she has greatly improved in strength and flesh since the operation, still we do not look for a recovery in this case.

Case 2.—Mr. H., referred to us by Dr. Kramer. A young married man, about 30 years of age, was brought to St. Joseph's Hospital about two and one-half years ago, along with his sister, each having an attack of appendicitis.

We operated on both cases at that time, but, unfortunately, the young man's appendix had already ruptured, and we found about a quart of pus in the well walled-off abscess. As the appendix was not readily accessible, and as we believed at that time, if it were not, it was better simply to drain and leave the appendix, we did so in this case, and in three weeks he was well and returned home to a neighboring town.

Two and one-half years intervened when he was again taken suddenly ill with a second attack of appendicitis. His home physician being called in, believed it to be partial obstruction of the bowels with auto-infection. On the third day I was called, and knowing the previous history, made a diagnosis of another appendiceal abscess. He was brought to the hospital, and upon opening the abdomen and attempting to disect out the old scar we found a loop of the ileum adherent to the abdominal wall and so intimately associated with the scar-tissue that it was torn in reaching the abscess. The abscess was drained and about an inch of the ileum resected and an end-to-end anastomosis made at the time. This handling of the bowels produced a paresis of the parts, and on the morning of the second day he was greatly distended, delirious, and vomiting with a temperature of 102°, although he had good drainage. A hypodermic of hyoscine and morphine was given, and in two hours I worked my finger down into the wound and lacerated the ileum at the point of the anastomosis with the result of an outpour of great quantities of gas and fecal material. The distention was all gone in a few hours, and the temperature and mental condition returned to normal.

In two weeks the pus seemed to be pretty well drained out, but of course all the fecal contents were pouring through the wound. He was again anesthetised, and upon opening the wound so as to make thorough exploration we found that there was a typical Lane's kink of the ileum, about three inches from the iliocecal valve. Four inches of the ileum was resected, and a lateral anastomosis made to the ascending colon.

While the patient made a complete recovery, still it teaches us the folly of leaving the appendix in any case where there is an appendicular abscess.

I believe, with Dr. V. B. Knott, of Sioux City, Iowa, that practically in every case of localized appendicular abscess the appendix should be removed, and I have been doing so the past year with excellent results.

Case 3.—Mr. T., a man 45 years of age, was referred to me by Dr. Kammerling in July, 1909.

Family history.—Negative.

Past personal history.—The patient was a chronic alcoholic for many years. He had never been sick with the exception of an attack of hepatic colic six years ago.

At that time he was taken to Chicago and operated on for gall-stone colic and over three hundred stones were removed and the gall-bladder drained. He was allowed to go home in a couple of weeks, and in about a week after returning home a small abscess formed at the seat of the incision, and a gall-stone the size of a pea worked out after the abscess had ruptured. This healed up nicely, and he was well for four years, when he again began having pain in the hepatic region, which was diagnosed as cholelithiasis. In July, 1909, he was brought to me for operation.

He was a chronic alcoholic and at the time when received the area of the hepatic dullness was considerably increased, and he was quite jaundiced.

Upon opening the abdomen we found a few adhesions fastening the gall-bladder to the pyloric end of the stomach, thirty-four gall-stones were removed, and he made an uneventful recovery and returned to his home in a couple of weeks. He was then well for one and one-half years with the exception of the alcoholism. In December, 1911, he was again taken with pains in the hepatic region, having attacks follow in close succession for about two weeks, requiring morphine to relieve the pain.

About December 20th he was taken with a very severe attack which morphine would relieve only temporarily, and after suffering for five days he was brought to the hospital with what seemed to be another attack of chololithiasis with partial obstruction of the common duct, as he was quite jaundiced. The abdomen was again opened, and we found many adhesions of the gall-bladder to all the surrounding parts. Breaking up all the adhesions and exploring the cystic and common ducts no stones were found. We did find, however, an hour-glass contraction, or condition, rather, of the gall-bladder, probably produced by adhesions, and the mucous membrane of the gall-bladder so degenerated that it was deemed best to remove in toto. He was taken back to his bed within forty-five minutes from the time he was placed on the table. He rallied very nicely, but the next day he began vomiting large quantities of bile. There was no pain during the rest of the time that he was with us; no temperature above normal; no bloating, and the pulse 90 to 114. The vomiting continued without any straining, simply a sort of a belching up of the bile. Stomach lavage was resorted to a few times with only temporary relief. On the fourth day the urinary secretion stopped, and only one ounce was secreted in thirty-six hours, supposed to be due to lack of fluid in the system, as the one ounce, obtained by catheterization, was found upon analysis to be normal.

The Murphy treatment was given with the hope of increasing the fluid in the body, but to no avail; therefore, after a few hours, a hypodermoclysis of one quart of saline solution, was given, with the result of about a pint of urine passing in a short time. The bowels were made to act with three drops of oil tigli placed on the tongue so as to be sure no intestinal obstruction obtained, but the vomiting still continued.

Several of the notable drugs for the prevention of vomiting were used, but with no relief, and he simply exhausted himself by continuous vomiting, dying on the twelfth day after the operation.

The slogan, "saving the hundredth man," might have been effective here had a cholecystectomy been done at the first or second operation, instead of at the last one.

Case 4.—Case four is interesting only from the fact that there were so many gall-stones removed and that there were two distinct crops of them.

Man, unmarried, 35 years of age, was brought to the hospital by Dr. Smiley of Mt. Vernon, S. D., on September 27, 1911. He had a history of having attacks of hepatic colic at intervals for the past three years. The last two or three attacks had been quite severe, and there was some icteric condition present when he was brought in. There was general tenderness over the region of the gall-bladder, and it was especially sensitive to the Murphy method of percussion. Operated at once and relieved the man of 2,337 gall-stones. These stones showed that there were two separate crops by the fact that there were two different sizes of stones, one size being about that of a kernel of corn and all well faceted; the other being about the size of a grain of wheat and all well formed and faceted. The adhesions were so many and dense that we did not attempt to loosen them, fearing that a perforation existed between the gall-bladder and the duodenum, which suspicion was confirmed when removing the stones by removing a slough from the interior of the bladder where such perforation had previously existed.

Our method of operating on these cases is to open the abdomen, explore the gall-bladder and its ducts to locate the position of any stones if in the duct, and open the gall-bladder; and after having scooped out all the stones and wiped it out dry with strips of sterile gauze, it is explored internally with the finger, and then sterile water is forced through it with a three-ounce syringe to make sure that the ducts are patulous.

An ordinary split tube filled lightly with iodoform gauze is inserted down into the gall-bladder as far as it will go and then withdrawn about one-half or three-fourths of an inch, and a purse-string suture placed about the fundus of the bladder and hitched to the tube, and then the tube pushed on down into the bladder thus inverting the fundus of the bladder in and about the tube. The purse-string is now drawn taut, and the wound closed in the ordinary way.

The iodoform gauze is usually removed on the second day to facilitate better drainage, as we believe that drainage is the best way to ultimate recovery in all these cases.

The tube is removed on the eighth or ninth day and the wound allowed to close.

PROGRESS IN MEDICINE

Abstracts of medical reprints and articles on file in the library of the Department of Medicine, College of Medicine and Surgery, University of Minnesota.

UNDER THE CHARGE OF

DR. CHAS. LYMAN GREENE

Professor of Medicine and Chief of the Medical Clinic

These abstracts are read and discussed at the departmental meetings held monthly at the University Hospital.

A LECTURE ON THE EVIDENCES OR AURICULAR FIBRILLATION,

Treated Historically by THOMAS LEWIS, M.D., M.R.G.P., ETC., LONDON

London Lancet, January 13, 1912, p. 57

The fact that this historical review begins with the year 1906 illustrates vividly the progress made in the study of cardiac pathology by modern methods.

Dr. Lewis lucidly describes the phenomena associated with auricular fibrillation and traces the growth of knowledge concerning it from isolated clinical observations to experimental proof and graphic record.

Though entirely wrong as to the etiology of the *pulsus irregularis perpetuus*, Mackenzie's observations as to auricular insufficiency by means of the clinical polygraph laid the foundation for a better knowledge.

This came through Cushney and Edmunds, who suggested that inasmuch as experimentally induced auricular fibrillation in the lower animals gave similar curves, the associated condition might be the same in man.

Dr. Lewis convinced Dr. Mackenzie, who at once accepted the fact and promptly abandoned his "nodal rhythm" theory.

Lewis published in November, 1909, and Rothberger and Winterburg, working independently, published identical views in July of the same year.

The unsatisfied desire of Dr. Lewis to see auricular fibrillation as the result of actual disease was fulfilled when, through the aid of a veterinary surgeon, he saw the wonderful phenomenon in the beating, but diseased, heart of a dying horse.

Dr. Lewis adds nothing new to our present knowledge, but incidentally gives a singularly clear description of the electrocardiographic records obtained in this condition.

C. L. GREENE.

THE USE OF DIGIPURATUM IN HEART DISEASE

BY WILLIAM F. BOOS, M. D.; L. H. NEWBURGH, M. D., AND HENRY K. MARKS, M. D., BOSTON

Archives of Internal Medicine, April, 1911, Vol. VII

The authors emphasize the uncertainty in action, and the great variation in strength, of the ordinary preparations of digitalis and strophanthus, quoting the studies of Fraenkel and of Buchner as proof of such.

Further, the tendency of the leaf preparations to produce in many patients gastro-enteric disturbances often renders digitalis medication difficult. This untoward effect is attributed, in part, if not wholly, to the presence in the leaves of digitonin, a substance pharmacologically a saponin.

Gottlieb has succeeded in obtaining a product free from digitonin and from 85 per cent of the other bulky and inactive matter which ordinarily passes into a leaf-extract, but retaining practically all the digitalin and digitonin contained in the crude leaves. To this purified product Gottlieb gave the name of *digitalis depuratum*, or *digipuratum* for short. This purified digitalis extract is a yellow liquid, the active principles of which are insoluble in cold water and acids, but easily soluble in dilute alkalies, thus insuring their ready absorption from the intestines. The yellow fluid is standardized physiologically and is then taken up with sugar of milk to form a powder. The powder obtained is further diluted with sugar of milk until the resulting product has a definite and constant pharmacologic strength. For convenience of dosage digipuratum is usually dispensed in tablet form, each tablet containing 0.1 gm. of the powder.

The very favorable results obtained with digipuratum by Hoepfner, Mueller, Tissot, Clemens, and others encouraged the authors to try the preparation in the medical service of the Massachusetts General Hospital.

In the course of a little over a year more than 180 cases of primary heart-disease or secondary cardiac involvement had been treated with digipuratum. The effect on the urinary output was very prompt in most instances. Not a single case of vomiting or diarrhea occurred; in fact, the vomiting of a number of cardiac patients at entrance was promptly stopped by digipuratum. Cumulative poisoning was never observed.

Eight cases taken from the first fifteen of heart diseases treated with digipuratum are briefly reported. A chart accompanies each case, all showing graphically the prompt diuresis and slowing of pulserate which followed the use of digipuratum.

The preparation was given, as a rule, in treatments of twelve tablets in four days; four tablets the first day, three the second, three the third, and two the fourth day. In the more serious cases the drug was continued in doses of one or two tablets for a longer or shorter period. In one patient, a boy of 16, 106 tablets were given in six weeks with at no time any suggestion of digitalis poisoning.

Note.—Unquestionably the results obtained by the authors with digipuratum in advanced cardiac cases with marked failure of compensation, are very striking and go far to show that in this preparation we now have a most valuable, rapid, and efficient method of administering digitalis. E. T. F. Richards.

STUDY OF SCLEROSIS OF THE CORONARY ARTERIES

Harlow Brooks

N. Y. Medical Journal, October 27, 1911

Edward Jenner first recognized, in 1775, the importance of coronary sclerosis, Heberden having described its symptoms in 1768, though he failed to trace the connection of the anatomical with the clinical picture. The first clinical diagnosis of coronary sclerosis was made by Jenner upon the person of his friend, John Hunter, by whom he had been shown the lesion at the post-mortem table.

The author found that in 270 out of 1,000 consecutive autopsies the coronary lesions were sufficiently pronounced to seriously affect the nutrition of the heart-muscle. His cases showed but 20 per cent greater frequency of coronary involvement in arterial cases in men than in women. The author believes the influence of age to be overstated, and that the disease exists commonly in youth or in relative youth. He finds the average age in these fatal cases to be of about forty-five years. Senility itself was causative but sixteen times in 270 cases, and he somewhat minimizes the effect of the mode of life. Another surprising statement is to the effect that *coronary sclerosis is but rarely connected with typical severe angina pectoris.* In 107 of the writer's cases the abuse of alcohol appeared to be the important factor, though this finding may have been vitiated by the fact that a very active alcoholic service was being conducted in the hospital from which the material was collected.

Nephritis appeared in 35 cases; syphilis, in 30; tuberculosis, in 20; cancer, in 4; diabetes, in 6; and rheumatism and myelitis, in 3 cases each. The excessive use of tobacco seemed to be a factor in 9 instances. Obesity was present in but 4 instances as a distinct etiological factor. (It is most important that in the interpretation of all such statistics as those presented by Dr. Brooks the misleading factors arising from the consideration of post-mortems occurring in a public service and disregarding in large part the class of people dealt with by the practising physician, be given full weight.)

The author states that almost inevitably the fatty heart shows coronary sclerosis, and he very properly combats the idea that hard work *per se* is necessarily a factor in the production of sclerosis, stating that it is more likely to be found in those who are living lives of ease for the greater part and taking up violent exercise, with or without training, at intervals.

In one of the most frequent types the chief alterations occur in the aortic arch which shows masses of sclerotic tissue in the subendothelial layers about the origin of the coronary arteries. This limits the amount of the blood-supply to the heart and occurs also in endocarditis, particularly of the aortic ring. The most frequent type is an endarteritis in which there are proliferative changes in the subendothelial layer of the intima, resulting in, or associated with, necrosis, fatty degeneration, and the formation of atheromatous cysts, the result being the narrowing of the lumen and consequent decrease of the blood-supply. This occurs most frequently in old-age alcoholism and conditions of nervous anemia. When toxic causes are chiefly operative, as in tuberculosis, infectious diseases, or obesity, there are usually primary changes in the media, consisting principally of fatty degeneration, or interstitial hyperplasia combined with muscular atrophy. In the last form the lumen is increased rather than diminished, but elasticity and contractility are diminished. Dr. Brooks states that in these last cases, especially, the cardiac muscle suffers most from malnutrition. If high blood-pressure be superadded, aneurismal dilatations are common. In the type seen most frequently in athletes and also in syphilitics the adventitia is markedly affected. Acute arteritis is rare and due, in most instances, to tiny septic embolisms followed by an acute inflammatory process or coronary thrombosis.

Of the 270 cases reported 255 showed microscopic changes in the myocardium, and in 215 of these cases the changes were sufficient to contribute to the cause of death. Fatty changes were most common. Brown atrophy was present in 64 cases, and is almost invariably present if chronic alcoholism is a factor. In 14 cases this condition was associated with fatty degeneration. Myocardial fibrosis was present in 24 cases. Thirty-five showed well-marked cardiac hypertrophy, presumably associated with high blood-pressure.

Actual dilatation, demonstrable post-mortem, appeared in but 20 instances. (This cannot be taken as indicating the clinical condition of the chambers during life). Aneurism and rupture of the heart occurred in 2 instances each. In dealing with symptoms Dr. Brooks lays great stress upon the arhythmia, whether persistent or developed by physical exercise or psychic influences. Precordial oppression increased upon exercise; variations in intensity of the heart-sounds from day to day, or even from moment to moment, and varying degrees of cyanosis and cardiac asthma are also mentioned.

He very properly emphasizes the importance of the blood-pressure readings, both as to daily and momentary variations.

He refers also to the intervals of bradycardia in coronary sclerosis and ascribes anginal pains to arterial spasm comparable to that observed in temporal neuritis associated with arteriosclerotic vessels, in erythromelalgia and intermittent claudication or the visceral crises associated with splanchnic arteriosclerosis. Dr. Brooks also rightly emphasizes the fact that angina pectoris is a term which should not be limited to the agonizing attributes of precordial pain and oppression commonly described in the text-books, but is equally applicable to cases often miscalled "pseudo-angina pectoris" and "hysterical angina."

In his series the coronaries were diseased in 116 out of 152 cases in which peripheral arteriosclerosis was manifested. Yet, on the other hand, in only these 116 of 270 cases of coronary disease were changes detected in the peripheral arteries. He would assume the probability of the presence of coronary sclerosis of greater or less degree when the blood-pressure was above 180 mm. and particularly in those in whom unexplained paroxysmal increase in the blood-pressure is found, especially when it supervenes upon low blood-pressure periods. Cardiac asthma of the major paroxysmal type is a characteristic sign. C. L. Greene.

OM DIAGNOSE OG BEHANDLING AV DEN TYFUS MILTABSCES

Propping

Tidsskrift for Den Norske Laegeforening,
January, 1912

A REPORT OF A CASE OF POST-TYPHOID ABSCESS OF THE SPLEEN

The first number of *Tidsskrift for Den Norske Laegeforening* for 1912 considers the diagnosis and treatment of this case reported in the *Münchener Medizinischen Wochenschrift*, No. 25, 1911.

Propping states that fourteen days after convalescence the patient began an oscillating temperature, never quite returning to normal. In a few days the temperature continued higher. There was no pain; the spleen just palpable; white count, 10,000; diminished respiration over the left lower chest. Fourteen days later, chills, fever, and sweats began. The radiograph showed the left wing of the diaphragm abnormally high and dense shadow in the region of the upper pole of the spleen. The white count was 42,000. Exploratory puncture brought pus.

The case is unusual in the absence of pain and that the oscillating temperature was practically the only clinical sign of a complication. F. A. Olson.

X-RAY STUDIES OF SEROFIBRINOUS PLEURITIS

Wm. Engelbach and R. D. Carman
Saint Louis

The American Journal of the Medical Sciences
December, 1911

The classical descriptions of pleurisies have been based upon the supposition that they are all in the lower portion of the upright chest, and that the fluid is more or less mobile. Upon this assumption, it is difficult to explain cases showing the following physical findings:

1. The presence of tympany over Traube's space with a left-sided pleurisy.
2. The presence of physical findings of fluid posteriorly and not anteriorly, or vice versa.
3. Modification or absence of S-shaped line.
4. The absence of displacement of organs with apparently large effusions.
5. The absence of Grocco's sign in some cases.

The authors, by a combined clinical and skiographic investigation of 50 cases of single serofibrinous pleurisy, come to the following conclusions:

1. The location of the fluid in serofibrinous pleurisy is variable. In a great majority of cases it is more or less in the vertical position in the upright chest.
2. The location is probably dependent upon the constant position assumed by the patient during the acute stage of the disease. Adhesions forming at this time encapsulate the effusion, fixing it permanently in this portion of the chest.
3. This encapsulation explains the discrepancy of physical findings with relation to the displacement of organs, Grocco's sign, obliteration of Traube's space, motility with change of position of the chest, and other confusing physical findings in certain cases.

E. J. Huenekens.

UEBER PENTOSUREA

Prof. Dr. Albu, Berlin

Real—Encyclopädie der gesammten Heilkunde, 4. *Aufl.*

First described by Salkowski and Jastrowitz, cases illustrating this extremely rare anomaly of carbohydrate metabolism appear but seldom in the literature.

Pentose occurs in a free state in human urine only. It is found in certain fruits and vegetables, and it may be recovered, in lower animals, from various organs, but chiefly from the pancreas.

The pentose, as found in human urine (arabinose), is optically inactive; that of lower animals (xylose) is dextrorotatory.

The course of the urinary pentose is unknown, though doubtless formed in the human body itself, possibly from galaktose, a rare derivative of lactose.

Pentosurea is usually mistaken for glycosurea, and, like glucose, pentose precipitates metallic salts in alkaline solutions.

Professor Albu emphasizes the important fact that such precipitation in the case of pentose is so sudden as to appear almost projectile and, therefore, unlike the usual glucose-reduction process.

Moreover, the substance is not fermentable, and is optically inactive.

The orcin test of Jollen as modified by Bial suffices for the direct recognition of this substance.

Formula:

Concentrated HCl	500.
Orcin	1.
10 per cent Ferric chloride solution	xx-xxx m.

(This reagent does not keep well.)

Test: 3-5 c.c.m. of urine are heated with double the quantity of the reagent.

Before the boiling-point is reached a greenish-blue color appears if pentose be present. If actively boiling the same color-reaction appears in the presence of glycuronic acid. Various other methods are mentioned more especially the polaroscopic.

Pentose may be excreted for years without any associated signs of illness. It may accompany true diabetes or appear in persons of diabetic inheritance, but is more often associated with the neurasthenic state or with neuritis and neuralgia.

Albu believes it should be sought for in all cases of apparent diabetes to protect the patient from unnecessary alarm, dietetic hardships, and rejection at the hands of the life insurance companies.

C. L. Greene.

THE
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THE JOURNAL-LANCET AND THE STATE ASSOCIATIONS—A STEP BACKWARD

It is difficult to set forth in the limits of an editorial our conception of the relation of THE JOURNAL-LANCET to the State Medical Associations of the Northwest. It has always been the purpose of the paper to serve the profession and, through the profession, the public; but how best to do this has not always been clear to us. The problem is made difficult by the uncertain action of the Associations, whose legislative bodies change annually, and it is further complicated by the financial part of the work.

Two distinct courses have been open, for several years, to the editor and his associates, and a definite and permanent choice between these courses must soon be made. These courses are (1) to conduct the paper as the *journal* or *official organ* of the Associations, or (2) to conduct it independently of the Associations. The advantages and disadvantages of the two courses can be treated herein only briefly.

1. As the journal or official organ of several associations and their component societies, the paper is expected to publish the transactions of, and all the papers read before, the associations, together with many papers and other matter from the local societies. A good deal of this matter is hardly worth publication in itself, and perhaps not a little of it should be refused publication; but the fact that papers prepared for and read before small gatherings of men, in State Associations or local societies, are to be given large publicity by publication, tends, most decidedly, to improve their character, and it seems to us doubtful whether a local medical journal can serve the profession so well in any other way as by the publication of all their papers.

2. Because of the large growth of the Northwestern field, there is now enough high-grade medical literature to occupy all the space available in a journal whose size is limited by the income attainable in this territory. Such a journal has a distinct value to the profession of the territory inasmuch as it places before the profession the best work done by its leading men, and particularly work of special and timely local value, such, for instance, as the papers of Drs. Ruediger, Miller, and Smith of North Dakota, in which the attention of the profession of the Northwest was called to the presence of a new disease (sporotrichosis) in the Northwest, a disease that had not been properly diagnosed or treated by even our best men.

As between these two courses THE JOURNAL-LANCET has found it difficult to make a choice, and the matter is not yet settled. We have, however, been attempting to follow the former course, in the belief that the present need of the profession of the Northwest is the greater in this direction; but our path has not been a rosy one, and we are in doubt whether it is wise to continue it. Much fault has been found with us, and very justly, because we could not publish promptly a good deal of excellent matter coming to us from outside of the organizations above referred to. Our subscription income at the low rate practically demanded by the Associations, has not been sufficient to meet the increased outlay of a further enlargement of the paper. We foresaw this difficulty long ago, and we attempted to provide for it in our communication to the Minnesota Association concerning the renewal of our contract, wherein we said we did not want to make a five-year contract without provision for a cancellation or an increase of price in case the cost of publication became too much as compared with our income. This business precaution was objected to and criticised quite harshly in the House of Delegates. We made like provisions in our contracts with the North and South Dakota Associations.

Our problem is now further complicated—possibly it is partially solved—by the recent action of the North Dakota Association in deciding to go back to an annual volume of proceedings, which, we think, is a decidedly backward step on the part of this Association, and it is one which, in our opinion, will not meet the approval of one-tenth of the men who write the papers of the North Dakota profession and so, in no small measure, determine the profession's standing in the country. As the action of the Association is manifestly to our financial gain, we can hardly be accused of bias in this opinion. We regret the action because we thought we foresaw what we were striving for, namely, a united Northwestern profession working together for a single end, the good of the profession and the good of the public.

COMPULSORY REGISTRATION OF VITAL STATISTICS

The Minnesota State Board of Health, through its new official, Dr. F. L. Watkins, has inaugurated a vigorous campaign to secure complete registration of births and deaths. The recent action of Dr. Watkins in Fillmore County, resulted in the filing of affidavits at Preston against nine physicians and one parent for failure to report births. This is only the beginning of actions that will be taken in other counties throughout the state just as soon as they can be investigated and the offenders located. Other counties have already suffered from this compulsory registration effort, and their affidavits have been filed against physicians who were tardy in making their reports. The State Board of Health means to carry this work on until the towns and cities in the state understand that the law is to be enforced. The newspapers in the cities and throughout the state have published the action of Dr. Watkins, and have given the names of the physicians who have been negligent in the matter of registration. Of course, there will be a great deal of criticism on the part of many men, but all excuses must be laid aside, in order to perfect the Department of Vital Statistics.

Judging from the past, it would seem that the importance of the registration of births and deaths has not been fully appreciated. It is necessary to have the registration of deaths in order to know the results of the crusade against the various communicable diseases. For this purpose alone the records are indispensable, but, in addition to this, comes the necessity for the records for legal purposes. This is especially true of the records of births.

It is oftentimes necessary to resort to these records for the purpose of establishing the school age and the age for voting or for jury service, as well as establishing identity for the purpose of securing property rights. The prevention of child labor depends entirely upon these records. In fact, the registration of births is absolutely necessary, as some states will not permit a child to enter school until the child produces a record of birth. The failure to file a certificate at the time of birth may not only work great hardship, but may cause considerable expense to some person moving from Minnesota to a state having this requirement.

We do not believe that it has been the intention of the physicians of Fillmore County to violate the registration law. It has, no doubt, been the result of carelessness. The physician enjoys certain privileges and immunities granted by the State, and assuming this service is rendered the State, the State seems justified in demanding it in return for the privileges and immunities enjoyed under the laws.

In the making of these records, especially those of birth, the service is not rendered the State: the State is only the agent for preserving these records and keeping them in such shape that they are ready for reference at any time that they may be needed in the future for the protection of the interests of the children.

THE AMERICAN JOURNAL OF PUBLIC HEALTH

There is no journal published in the United States that is of such vital importance as one which deals with public health and preventive medicine. The journal referred to above is the organ of the American Public Health Association. It represents the United States of America the Dominion of Canada, the Republic of Mexico, and the Republic of Cuba; and it contains articles on every conceivable subject referable to the improvement of the health of the nations and the republics. *The Journal* is published monthly, and is full of interesting articles written by competent men. The April number has an article on "Sanitary Engineering" by Rudolph Hering; "A Preliminary Report on Typhoid Fever for Rural Virginia;" "The North Caroline Campaign

Against Hookworm Disease;" "A Bacteriological Study of the Milk Supply of Washington, D. C.;" "A Report of the Committee on the Reporting of Typhoid Fever;" and short articles on the International Congress of Hygiene and Demography; "A Portable Outfit for the Determination of Visible Dirt in Milk;" "The Sterilization of Milk Bottles With Calcium Hypochlorite," "The Distribution of Cases Among the Several Producers in Epidemics of Non-Milk-Borne Infectious Disease." It also contains editorials on current topics, book reviews, and public health notes. The March number is equally interesting.

This journal ought to be in the hands of every health officer, not only members of city boards of health, but of township health officials, as it deals with all questions which embarrass country and county health officials.

A sample copy of the paper can be secured from the office, 289 Fourth Avenue, New York City. A study of the health problems presented in this kind of a journal would do much to get rid of the antihealth people, who have tried to prevent the establishment of a National or Federal Health department.

BOOK NOTICES

Whence and Whither; or, The Evolution of Life. By Thomas F. Neil, B. S., M. D., Formerly Superintendent of Blair County Hospital for the Insane. Mirror Printing Company, Altoona, Pa.

Here is a book of a half hundred pages, such as man delights to write—and sometimes to read—as he lingers about the chloroform age. The biological view of man is presented under four rubrics: "The Origin of Man;" "His Progress;" "The Progress of the Soul;" and "The Progress of Civilization."

Each rubric is preceded by a sentence from Darwin, Browning, Drummond, etc., betraying the pabulum out of which the whole has grown. To the author life is a struggle through which his pious spirit has come, chastened and filled with more kindly sentiments than those with which it began.

The whole closes with a robust and inspiriting optimism—as to the future of man—truly American.

One significance of a book of this sort is to mark the extent to which the newer knowledge—modernism—has since the publication of the "Origin of Species" permeated the mass of the community. Some minds will think of the doctor's theology: "The shoemaker should stick to his last," having the same opinion of it as did the dominie of the reviewer when he remarked of his theology, "If your understanding of medicine is no better than your understanding of theology, I shall be slow to have you practice in my family."

Vaginal Celiotomy. By S. Wyllis Bandler, M. D. Adjunct Professor of Diseases of Women, New York Post-Graduate Medical School and Hospital. Octavo of 450 pages and 148 illustrations. W. B. Saunders, New York and Philadelphia. Cloth, $5.00, net. Half Morocco, $6.50, net.

Dr. Bandler has presented in most admirable form, a subject which, as far as practical application is concerned, is limited to an admittable and admitted narrow field. However, this fact should not be interpreted as an argument against the usefulness of the text. The gynecologist of yesterday has become the surgeon of today, the change taking place rapidly and under circumstances peculiar, to a great extent, to the new world. The proper performance of pelvic surgery is highly important even though undertaken by the general surgeon. Hence, the great value of the work that Dr. Bandler offers to the profession with such clearness and definition. Few of the younger surgeons of today are able to perform vaginal hysterectomy with the precision and deftness of the gynecologist, due partly to the fact that the abdominal opening permits wider exploration, and mainly to the fact that even though the vaginal route is indicated, they do not feel intimate enough with anatomical relations to undertake it. Dr. Bandler here offers these an opportunity to familiarize themselves with these relations, clearly described and illustrated.

Manual of the Diseases of the Eye. For Students and General Practitioners. By Chas. H. May, M. D., Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department of Columbia University, New York. Seventh Edition; revised with 362 original illustrations including 22 plates with 62 colored figures. 1911, Wm. Wood and Co., New York. Price, $2.00 net.

This, as the author intended, is the ideal textbook on diseases of the eye for the student and general practitioner of medicine. It is especially adapted to the internist.

He says not too much, but just enough to give the reader a good insight into the subject. He first takes up the external examination of the eye, then the vision and field of vision, etc., and finally the oblique illumination and ophthalmoscopic examination.

There are several excellent plates on the fundus. Diseases and injuries of the lids, lachrymal apparatus, orbit, and conjunctivæ are next discussed with diagnosis and treatment. The anatomy and histology of the part are fully explained. There is just enough bacteriology for diagnosis. The diseases of the cornea, iris, lens, fundus, etc., are accurately discussed. The chapters on refraction and disturbances of motility of the eye, are short, concise, and excellent.

He closes with a chapter on the ocular manifestation of general diseases, which is very good.

A Guide to the Prevention of Disease and to the Preservation of Health. By Dr. W. A. Chamberlin. The Roxburgh Publishing Company, Boston, Mass.

This is a book well worth reading, and may safely be placed in the hands of the laity.

The introductory chapters are well planned, leading from a résumé of the anatomy of the bones and muscles to a brief description of the circulatory, respiratory, nervous, and cutaneous systems.

Practical hygienic suggestions are timely placed before taking up the more general subject of the book.

The infectious and contagious diseases are carefully noted, with the proper care and such preliminary treatment as can be given before a physician reaches the patient.

Timely warning is given against nostrums and patent medicines.

In short, as the author states in the brief appendix, one of the leading objects of the book has been to enlighten and persuade readers that the facts presented have been proven along lines of professional advancement toward the eradication of disease—prolonging life—and protecting humanity from sickness, deformity, and invalidism.

A Manual of Materia Medica. By E. Quin Thornton, M. D., Assistant Professor of Materia Medica in the Jefferson Medical College, Philadelphia. Octavo, 525 pages. Cloth, $3.50 net. Lea & Febiger, Philadelphia and New York. 1911.

This work by Dr. Thornton is especially designed for student use, and its arrangement is very concise and practical. The subject-matter has been divided into three parts. The few pages on posology are very valuable to students, as they emphasize the various elements governing the dose and administration of drugs, illustrating the impossibility of fixing an absolute dose for any drug.

There are fifteen pages of primary Latin, which we ought to be able to eliminate from a medical text-book, for all students should be perfectly familiar with the primary Latin declensions and conjugations before they enter upon the study of medicine, and especially so in view of the fact that all up-to-date medical colleges have advanced the standard of entrance requirements very noticeably.

The reviewer had hoped to see an American publication by this time containing only the metric system of weights and measures, for that is the only way we shall ever be able to compel the student to adopt it; and the day is not far distant when we shall be compelled to adopt it as our only system in medicine.

One cannot praise the chapter on "Incompatibility" too highly; the subject is of the greatest importance to the student, and this work contains the best material, with the best arrangement, on this subject of all the publications yet issued. Not only are the subjects of physical and therapeutic incompatibilities well treated in Part I, but in Part II, which is the alphabetical arrangement of official drugs and chemicals, the author has, under each drug, given the chemical incompatibility of the drug, with all groups and individual drugs, which is of extreme value to the student in proper prescribing.

Since the author has not incorporated the subject of therapeutics in his work there is little comment or criticism to be made upon the subject-matter of Part II, as it is simply publishing the U. S. P. reports.

Part III contains the alphabetical arrangement of official preparations, which appears superfluous, as it is but a duplication of the list of official drugs already given in Part II, where the official drugs could have been designated by some character or by being marked *official*. The listing of the official drugs simply encourages the student to depend upon referring to, rather than fixing in his mind, all the important points to be remembered when he first studies the drug.

There is a second duplication, which adds to the cost of the volume (an item of much importance because of the usual anemia of a student's finances). This occurs in the appendix, which is an alphabetical list of official drugs, with their average approximate doses for adults. This again encourages the student to depend upon references, which, when easy, encourage superficial study and stimulate dependence on reference, while, if he is obliged to search the subject-matter of his book for information, he is more likely to exert himself to fix all points when once he has the subject before him and thus save time in the future.

As a work on materia medica alone, with no therapeutics, one is tempted to place a higher value upon the publication as a reference book than as a student manual.

Proceedings of the American Association of Medical Milk Commissions, 1910: Fourth Annual Council.

These 226 pages are well edited and nicely printed. They contain the addresses, papers, discussions, and data on topics of milk betterment and the allied subjects of infant-feeding and milk-charities. There are rosters of attendance and of milk commissions; also constitution and by-laws; working methods and standards. sults of experiment and investigation. The Under these divisions are found even model license laws, forms, contracts, and tabulated re- scope is wide for the size of the volume.

The contributors are men of wide acceptance in medical, governmental, and private enterprises. These view from widely different angles the development of the pure-milk service. Here are traced the methods from that of the farm and uniformly poor milk to the production of certified milk and its distribution. A very inviting field of life-saving and health-improving endeavor is opened up in the use of our imperfect data regarding the effects of bad milk contrasted with the improved supply.

For the above reasons this book is valuable to the physician. To that group of men, to whom, in each medical society, is intrusted the task of securing further advance, this book is a year-book of progress. It gives the newer ideas; the advance geographically of the ideas; and observation even in foreign countries.

Writers offer suggestions of which the following are an index: That standards and ordinances should be enforced gradually and liberally so that education rather than punishment may be secured; that even without ordinances or money successful work may be done; that the bacterial count is the key to successful control; that the vacuum-cleaner is a dust-remover for cows' hairy coats; that publication of scores for dairies and for milks raises all grades and gives good grades at small cost; that the distribution of certified milk is a problem yet unsolved.

Much of the labor in securing better milk is scientific. There is "much in the problem that is moral," and in the prosecution altruism has full play. Many medical men, many most excellent citizens, have given largely of time and care and money in its advocacy. While for most of these the "virtues must be their own reward," yet an income is needed, as the secretary has said, for the Association and the component societies or commissions should deal liberally with this need. An endowment here would more than equal in glory the establishment of a library.

There are reasons in every paragraph of the book and of this review for the physician and the good citizen to read it carefully.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences.

In the December, 1911, number of this excellent work we find a very full review on the literature of the diseases of the digestive tract. The differential diagnosis of the diseases of the stomach and description of diseases of same are excellent.

The part on diseases of the intestines which follow next and that part which is devoted to the diseases of the vermiform appendix especially, is worthy of consideration, as it discusses the various forms of diseases of the same and especially the conclusion which H. C. Deaver has drawn from the analysis of a large series of operative cases.

Following are several pages devoted to diseases of the liver, gall-bladder, and pancreas. The various diseases of these organs are described very concisely and yet rather fully.

The pages devoted to diseases of the kidney and ureters are of marked interest. The article referring to the work of S. R. Mirotvortzeff, on the different methods of implanting the ureters into the intestine, is especially interesting and shows that, as yet, we have been unable to overcome the high mortality of this operative procedure, either directly or indirectly.

The article on surgery of the extremities, shock, anesthesia, infections, fractures and dislocations, and tumors, by Joseph C. Bloodgood, is written by a master of the subject, and contains a vast amount of knowledge.

Serum-therapy as discussed by Landis in the closing chapters shows what rational methods of treatment we are now approaching.

The articles in this number of Progressive Medicine, taking up as they do the common diseases below the diaphragm, are of such importance and are reviewed in such a concise manner, that they can be read with profit by every one.

NEWS ITEMS

Dr. D. E. Rogers has moved from Center, N. D., to Portland, N. D.

Dr. W. G. Chapman has moved from Clark, S. D., to Berwick, N. D.

Starbuck's new hospital building is well under way, and will be pushed rapidly.

The St. Paul City Hospital Training-School graduated a class of twenty nurses last month.

Dr. W. J. De Coursey, of Choteau, Mont., was married last month to Miss Cecilia Harris, of the same place.

The Robinson Hospital, of Sioux Falls, S. D., has passed into the control of the Black Hills Methodist Mission.

Dr. Gordon St. Clair, of Glen Ullin, N. D., has accepted a position on the staff of the Shipman Hospital at Ely, Minn.

Dr. S. B. Haessley, of the firm of Drs. Cremer, Claydon & Co., of Red Wing, has retired, and will locate on the Pacific coast.

Dr. W. W. Higgs, a member of the staff of the More Hospital at Eveleth, has moved to Alliance, Neb., to do general practice.

The reorganized hospital at Moorhead under the charge of Dr. E. W. Humphrey has sold $35,000 of its stock, and is now able to do efficient work.

Dr. Thomas E. Hall died in La Crosse, Wis., last month at the age of 57. Dr. Hall formerly practised in Lanesboro, Grenada, La Crescent, and other Minnesota towns.

Dr. F. L. Watkins, of the Minnesota State Board of Health, is taking vigorous and somewhat drastic measures to compel physicians to report vital statistics as required by law.

Dr. Herbert H. Judd, formerly resident physician at Hunters Springs, Mont., has became medical director of the Corwin Hot Springs, to fill the place of Dr. F. E. Corwin, resigned.

An epidemic of scarlet fever in Rochester last month caused a good deal of excitement, but the local board of health soon had it under control. Several outside physicians who were attending the Mayo Clinic, were quarantined.

The annual meeting of the Minnesota State Woman's Homeopathic League was held in Minneapolis last week. The papers read were mainly on the philanthropic work of women in medicine, rather than on purely medical matters.

Dr. C. L. Hustead, of Omaha, Neb., has moved to Rapid City, S. D., and formed a partnership with Dr. J. P. Waldron, of that place. Dr. Hustead has been professor of pathology at Creighton Medical College for the past four years.

The business men of Rochester have taken up the matter of a detention hospital for that city, and they suggest that a building to cost $20,000 be erected. If Rochester builds such a hospital the precedent will be worth a great deal to the Northwest.

Each of the Twin Cities has a quite remarkable way of duplicating what the other does. St. Paul has an alleged abortionist on trial, and Minneapolis has one under arrest with the date of trial set. There is apparent room for more duplication along the same line.

Dr. Clark, of the Marine Hospital Service, and Dr. H. W. Hill, of the Minnesota State Board of Health, have completed a thorough investigation into the condition of the Indians in Minnesota. Their report will go direct to the Government, and will no doubt be speedily acted upon.

The Aberdeen (S. D.) District Society met last month at Aberdeen. Drs. M. C. Johnstone and C. E. McCauley read papers, the former an illustrated paper on anatomy and the latter a paper on some needed legislation. Some new members were taken in, and the society now has a membership of 75.

At the annual meeting of the Montana Health Officers' Association at Helena, last month, Dr. Wilson Forsyth, of Helena, was elected president, and Dr. H. B. Tice, of Two Dot, was elected secretary. The association passed a resolution favoring the Owen bill, and telegraphed the Montana congressmen of their action.

The Tribune of La Crosse, Wis., recently gave a column and a half to an editorial on "Don't Jeopardize the School Nurse," in an effort to overcome the prejudice which would dispense with the nurse's services because she had, at the request of a parent, named a suitable physician who would charge a moderate fee for the treatment of a case.

The North Dakota State Medical Association held its annual meeting at Valley City last month. Officers for the current year were elected as follows: President, A. J. McConnell, Minot; vice-president, Dr. Murdock McGregor, Fargo; secretary, Dr. H. J. Rowe, Casselton; treasurer; Dr. F. J. King, St. Thomas. A full report of the meeting will appear in our next issue.

The Pioneer Press of St. Paul of May 21st published a statement from the Public Examiner of Minnesota to the effect that the State Board of Medical Examiners has been spending in an illegal manner fees received by the Board. Dr. W. S. Fullerton, the ex-secretary of the Board, makes a vigorous denial of the charge, and asserts that the Board's attorney passed upon the point at issue and informed the Board that its expenditures were wholly legal and proper.

Dr. F. M. Pottenger, of the Pottenger Sanatorium at Monrovia, California, addressed the Hennepin County Medical Society at a special meeting last month on the subject of our duty to the tuberculous. The attendance was large, and the address was exceedingly interesting and particularly timely and valuable as the subject is now receiving the attention of the Northwestern profession and public as never before. Dr. Pottenger is an eminent authority on tuberculosis.

The Montana State Medical Association held its annual meeting last month at Helena. The attendance was good, and the papers were said to be the best ever presented at an annual meeting. The next meeting will be held at Great Falls. Officers for the year are as follows: President, Dr. J. M. Scanland, Warm Springs; vice-president, Dr. H. McGrath, Hamilton; secretary, Dr. H. D. Kistler, Butte; treasurer, Dr. C. T. Pigott, Roundup; delegate to the American Medical Association, Dr. Donald Campbell, Butte.

The 1912 meeting of the South Dakota Association, held at Mitchell on the 23d and 24th of last month, did the profession a great credit. The attendance was over 130, every paper on the program was read, the discussion was full and interesting, the recommendations in the president's address were made by unanimous vote the official expression of the profession, the entertainment by the city of Mitchell was unexcelled, and, on the whole, the outlook for the South Dakota profession was materially improved by the character of this meeting. Officers were elected as follows: President, Dr. Clay E. McCauley, Aberdeen; first vice-president, Dr. F. A. Spafford, Flandreau; second vice-president, Dr. Fred Treon, Chamberlain; secretary-treasurer, Dr. R. D. Alway, Aberdeen.

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A well-established $3,500 practice in a fine Minnesota town is offered for the price of office furniture. Automobile and residence optional. County-seat. 4,000 population; railway division, hospital, large territory, good roads, good pay. Must have cash and good recommendations. Address R. M., care of this office.

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A fine office in Minneapolis, in a modern building, centrally located, is offered to a dentist or a doctor with two other physicians. Rent moderate. Address M. T., care of this office.

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My practice, office furniture, buggy, cutter and team of horses. Practice averages from $4,000 to $4,500 a year. Location in southern Minnesota, about 100 miles from the Twin Cities. Can be purchased reasonably. Address W. B., care of this office.

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Practice in central Wisconsin, established 17 years and paying $3,000, goes to purchaser of my 8-room house. Price, $2,000; one-half cash, balance on time. In growing agricultural town of 800; on main railroad; good roads and competition light; nearest doctor 11 miles; good community of German-Americans; going to retire. Do not write unless prepared to accept terms. Address W. S., care of this office.

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WHAT IS BEST IN TONICS?

Many people, and perhaps a few physicians, are inclined to consider the terms "tonic" and "stimulant" as more or less synonymous and interchangeable. This, of course, is not the case, although some agents employed medicinally may partake of the properties of both and be properly known as "tono-stimulants." Strychnia, for instance, is a heart stimulant, but may also be considered as a general nerve and systemic tonic when given in small and frequently repeated doses. While a stimulant alone is sometimes indicated in conditions of emergency, its long continuance almost certainly produces an after depression. It is sometimes advisable, however, to give stimulant and tonic together in conditions of serious general depression, the first to "boost" the vitality and the second to hold it at the point to which it has been raised and to restore the general tone of the organism. An ideal combination of this nature is Pepto-Mangan (Gude) to which has been added the proper dose of strychnia, according to indications. This combination is especially serviceable in the convalescence of exhausting diseases such as typhoid fever, pneumonia, la grippe, etc. It is also of much value when the heart needs support and the general system requires upbuilding. Pepto-Mangan restores vitality to the blood by increasing the number of red cells and the percentage of hemoglobin, and the strychnia assists in rendering the combination a peculiarly efficient general bracer and permanent reconstituent.

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The treatment of nasopharyngeal catarrh consists in local applications and in remedies that are to correct systemic states that are friendly to the development and continuance of the disease. An appropriate remedy must be one which is antiphlogistic, antiseptic, and soothing. In fulfilling this demand my constant reliance for a number of years has been Glyco-Thymoline. I employ it as a spray and douche. My favorite prescription is Glyco-Thymoline one ounce and distilled water two ounces. I have the patient douche the nose and spray the pharynx thoroughly with this solution every three hours. In some cases which do not get on rapidly I give the Glyco-Thymoline solution fifty per cent strong, though the first prescription is usually the proper strength and will bring about prompt relief if the patient earnestly co-operates with us in an effort to get well. I often do not employ any constitutional remedies because the condition is often purely local and nothing beyond topical applications are called for or are necessary. Still, when there is anemia, emaciation, chronic bronchitis, or any other systemic disease or condition present, it is our duty to direct our treatment to its correction as well as to keep up local treatment until there is no evidence of morbid condition.—J. G. Hutchinson, M. D.

Mr. A. J., a traveling salesman, came to me for treatment of nasopharyngeal catarrh. He had grown steadily worse since the cold weather began and this disease he said was a constant source of annoyance to him. I thought his degree of emaciation and anemia called for cod liver oil and I accordingly gave him a good preparation of it. He was given Glyco-Thymoline in the strength used for the former patient. This relieved the dryness and pain in his throat and nose in a day or so and he began to improve in every way. I was able to discharge this patient cured in six weeks after commencing with him.

Miss S. had nasopharyngeal catarrh which was very aggravating to her and which, as is the case with most of these patients, was gradually growing worse. She was given no internal treatment as there was, in my estimation, no demand for any. On local treatment Glyco-Thymoline in the strength of one to three of distilled water brought about a complete cure in about eight weeks.—J. B. Hutchinson, M. D., in *Therapeutic Record.*

A NEW THYROID PREPARATION

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The selection of normal glands for use in making Thyroprotein is a very important matter. It is now known that sheep from certain parts of the country always have goitrous glands which are rich in content of proteid of the thyroglobulin type, but contain very little iodine, and this accounts for much of the variation noted in thyroid therapy. Furthermore, the thyroid gland as a whole contains certain substances which appear to be not only useless, but actually harmful. In the preparation of Thyroprotein these objectionable substances are rejected.

Physicians who are desirous of learning more of this new thyroid preparation will do well to send a request to the manufacturers, Parke, Davis & Co., Detroit, for their new booklet descriptive of the product.

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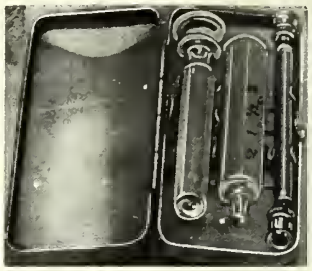

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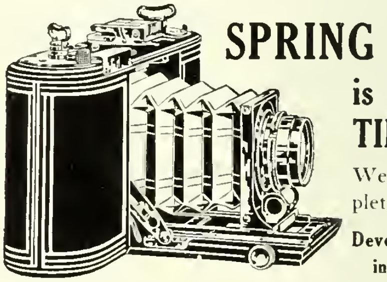

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THE
JOURNAL-LANCET

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and Official Organ of the
South Dakota State Medical Association

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TRANSACTIONS OF THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION

THIRTY-FIRST ANNUAL MEETING

1912

OFFICERS AND COMMITTEES

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CHARLES E. McCAULEY, M. D.......Aberdeen

FIRST VICE-PRESIDENT
FREDERICK A. SPAFFORD, M. D......Flandreau

SECOND VICE-PRESIDENT
FREDERICK TREON, M. D........Chamberlain

SECRETARY-TREASURER
ROBERT D. ALWAY, M. D...........Aberdeen

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WILLIAM EDWARDS, M. D............ ..Bowdle

COUNCILOR—SECOND DISTRICT AND SECRETARY OF THE COUNCIL
JAMES B. VAUGHN, M. D............Castlewood

COUNCILOR—THIRD DISTRICT
BURTIS T. GREEN, M. D..............Brookings

COUNCILOR—FOURTH DISTRICT
NAPOLEON B. GREENHART, M. D......Pierre

COUNCILOR—SIXTH DISTRICT
FRANK H. STEWART, M. D...............Kimball

COUNCILOR—SEVENTH DISTRICT
FREDERICK A. SPAFFORD, M. D......Flandreau

COUNCILOR—EIGHTH DISTRICT
JAMES ROANE, M. D...................Yankton

COUNCILOR—NINTH DISTRICT
FRANK S. HOWE, M. D.................Deadwood

MEMBER OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION
WILLIAM R. BALL, M. D...............Mitchell

Alternate
MERLIN C. JOHNSTON, M. D.........Aberdeen

PROCEEDINGS OF THE HOUSE OF DELEGATES

The first session of the House of Delegates was called to order by the President, Dr. W. G. Smith, May 22, 1912, at 3:00, in Elks' Hall.

The following responded to roll-call:

Delegates—

First District—Drs. C. O. Olson and M. C. Johnston.

Second District—Dr. R. S. Hart.

Third District—Dr. E. W. Dyar.

Sixth District—Drs. E. W. Jones and W. R. Ball.

Eighth District—Drs. H. J. G. Koobs and C. C. Gross.

Councilors—

Drs. Wm. Edwards, Fred. Treon, F. A. Spafford, James Roane, the President, and the Secretary.

The Secretary then submitted the following annual report:

REPORT OF THE SECRETARY

To the President and Members of the House of Delegates:

There has been no material change in the membership since our last annual meeting. In January I sent a personal letter to all non-members in the state urging them to join the Association. I also enclosed a reprint from our official journal setting forth the advantages of belonging to a medical society. In February I sent a follow-up letter setting forth other advantages of membership. To the first I received very few answers; to the second about twenty-five per cent acknowledged receipt of my letters, and with the exception of two, all were desirous of affiliating, their excuse being distance from, and poor railway connection with, their district societies.

Your Secretary is of the opinion that the membership could be materially increased by this method if followed up throughout the year, but would suggest that the Councilor of each district take hold of the matter with the Secretary as his assistant.

I wish to report the Brookings District No. 3 in good standing, with a paid-up membership of 10.

On the 21st of March Dr. J. F. Adams, Secretary of the First District, wrote me requesting that I write to our congressmen in regard to the prevalence of tuberculosis and trachoma among the Indians on the Cheyenne Reservation; also that I write Dr. H. M. Bracken, executive officer of the Minnesota State Board of Health, who was going to Washington on a similar mission for the State of Minnesota. I have had several letters from Hon. Chas. Burke, the Marine Hospital Department, and one from the Department of the Interior at St. Louis. I have asked Mr. King, the agent at Cheyenne, to be present at this meeting to present before our Association his recommendations for increased hospital facilities on the Reservation for the protection of the Indians and the removal of contagion from the white settlers. I would suggest that resolutions be adopted by this Association and forwarded to the State Board of Health at Pierre, to our senators and congressmen, and to the Department of the Interior.

The terms of office of Councilors in Districts Nos. 3, 6, and 9, and of the delegate and alternate to the American Medical Association expire at this meeting, and it will be necessary to elect their successors.

R. D. Alway, Secretary.

A communication was read regarding the conditions of the Indians on the Cheyenne Reservation. A communication was also read from Dr. Craig, Secretary of the A. M. A., and Dr. Mertens J. Hoven requesting that resolutions be passed urging the passage of the Owen bill.

On motion of Dr. Wm. Edwards, action regarding Indian conditions was referred to a special committee of three.

The chair appointed as such committee Drs. Fred. Treon, T. F. Riggs, and F. A. Spafford.

On motion of Dr. Gross, the Association endorsed the Owen bill, with a proviso that a communication be sent to senators and representatives of the state urging the passage of the bill, subject to any amendment agreed to by Senator Owen.

On motion of Dr. M. C. Johnston, the same action was taken with reference to H. B. 16,844.

On motion of Dr. Wm. Edwards, Drs. Alway and Johnston were designated as a committee to take up with the State Board of Health the matter of conditions at the state prison.

On motion of Dr. R. D. Alway, the President was instructed to appoint committees on nominations, resolutions, necrology, and public policy and legislation.

On motion of Dr. Roane, the Secretary was instructed to confer with secretaries of district societies with a view of making clear the desirability of having applications for membership made at regular meetings of the Association.

On motion of Dr. R. D. Alway, Dr. James Roane, of the 8th District, was instructed to organize a district society of that certain territory west of the river, and at present within the jurisdiction of the 8th District, with the provision that no charter be granted until the next annual meeting.

Dr. Wm. Edwards moved an amendment, which was accepted and incorporated into the original motion, and was to the effect that, with the application for a charter, a copy of the bylaws, list of membership, and an outline of the boundaries of the proposed district be submitted.

The President appointed the following committees:

Nominations—Drs. Fred. Treon, M. C. Johnston, F. A. Spafford, R. S. Hart, B. T. Green, H. T. Kenney, and James Roane.

Auditing—Drs. Wm. Edwards, H. M. Freeberg, and D. L. Scanlan.

Resolutions—Drs. E. Klaveness, E. W. Jones, and C. C. Gross.

Necrology—Drs. H. J. G. Koobs, C. O. Olson, and N. B. Gearhart.

Publication—Drs. R. D. Alway, Fred Treon, and F. A. Spafford.

On motion of Dr. C. C. Gross, the House of Delegates adjourned to meet at the call of the President.

SECOND SESSION

The second session of the House of Delegates was called to order by the President at 11 o'clock A. M., May 24, 1912, at Elks' Hall.

The following responded to roll-call:

Delegates:

First District—Drs. C. O. Olson, M. C. Johnston, and R. L. Murdy.

Second District—Dr. R. S. Hart.

Third District—Dr. B. T. Green.

Sixth District—Drs. E. W. Jones and W. R. Ball.

Seventh District—Dr. E. Klaveness.

Eighth District—Drs. H. J. G. Koobs and C. C. Gross.

Councilors: Dr. Wm. Edwards, Dr. Fred Treon, Dr. James Roane, Dr. H. M. Freeburg, Dr. H. T. Kenney, and Dr. F. A. Spafford, the President, and the Secretary.

The minutes of the previous meeting were read by the Secretary and ordered approved.

The Committee on Nominations made the following report:

REPORT OF COMMITTEE ON NOMINATIONS

The Committee on Nominations presents to the House of Delegates the following list of names for officers of the Association for the ensuing year:

President—Dr. C. E. McCauley, Dr. S. B. Dickinson, Dr. W. R. Ball.

Councilors—3d District, D. L. Scanlan; 6th District, F. H. Stewart; 9th District, F. S. Howe.

Delegate to A. M. A.—W. R. Ball; alternate, M. C. Johnston.

Invitations for the 1913 meeting were received from Vermillion, Redfield, and Watertown. Vermillion is recommended by the unanimous vote of the committee.

(Signed) H. T. KENNY, Secretary.

On motion of Dr. Green, the report of the committee was adopted.

The election of President was then proceeded with, with the following result: Total number of ballots cast, 20, of which Dr. McCauley received 17, Dr. Ball 2, and Dr. Dickinson 1. Dr. McCauley was declared duly elected.

On motion of Dr. W. G. Smith, the election of Dr. McCauley was made unanimous.

On motion of Dr. E. Klaveness, the Secretary was instructed to cast the ballot of the Association in favor of Dr. F. A. Spafford for First Vice-President, which was done, and he was declared duly elected.

On motion of Dr. James Roane, the rules were suspended and the Secretary was instructed to cast the ballot of the Association in favor of Dr. Fred. Treon for Second Vice-President. The Secretary so cast the ballot, and Dr. Treon was declared duly elected.

On motion of Dr. B. T. Green, Dr. D. L. Scanlan was unanimously elected Councilor of the 3d District.

On motion of Dr. Fred. Treon, Dr. F. H. Stewart was unanimously elected Councilor of the 6th District.

On motion of Dr. M. C. Johnston, Dr. F. S. Howe was unanimously named as Councilor for the 9th District.

On motion of Dr. E. W. Jones, the Secretary was instructed to cast the ballot of the Association in favor of Dr. W. R. Ball as delegate to the American Medical Association.

On motion of Dr. Hart, the Secretary was instructed to cast the ballot of the Association in favor of Dr. M. C. Johnston as alternate.

Dr. E. Klaveness placed in nomination the name of Watertown as the next place of meeting.

Dr. R. S. Hart moved that the matter of selecting a place of meeting be referred to the general session, which motion was lost.

A ballot was then taken to decide the place of meeting, with the following result: Total number of ballots cast 19, of which Vermillion received 12 and Watertown 7. The President declared Vermillion to be the next place of meeting.

On motion of Dr. M. C. Johnston, seconded by Dr. R. L. Murdy, the action of the House of Delegates was made unanimous.

On motion of Dr. James Roane, the time of the annual meeting was designated to be held in one of the last two weeks in May, on Tuesday, Wednesday, and Thursday, the specific dates to be announced by the physicians of Vermillion.

Dr. F. A. Spafford, as chairman, submitted on behalf of the Committee on Biography, the following form for the proposed card-index:

Date........................
Name ....
Residence ....
Age ....
Social condition ....
Date of birth.......................................
Place of birth......................................
To whom and when married............................
Names of children...................................
Preliminary education and from what institution.......
(*Academic degree.*)
Graduation in medicine..............................
(*When and where?*) ....
Licensed when ....
Former locations and dates..........................
Post-graduate work ....
Civic offices held..................................
Miscellaneous positions held........................
Additional information..............................

On motion of Dr. Klaveness the report of the committee was adopted.

REPORT OF COMMITTEE ON RESOLUTIONS

The Committee on Resolutions submitted the following report:

Resolved, that the State Medical Association extend to the Sixth District Medical Society and to the physicians of Mitchell its sincere appreciation of the cordial and royal hospitality tendered to its members; also to the Elks' Lodge of Mitchell for its courtesy in permitting the Association to use its commodious lodge-home during its sessions.

Resolved, that we express our appreciation of the able manner in which our President, Dr. William G. Smith, has administered the affairs of this Association during the past year, and presided over its deliberations during the present meeting; also that we express our sincere appreciation of the efficient services rendered by the State Secretary, Dr. R. D. Alway.

Resolved, that we express to the auxiliary body of this Association, composed of the wives of members, our appreciation of their presence, and convey to them our best wishes; also that we express our sincere thanks to the citizens of Mitchell for the many courtesies extended, which added materially to our comfort and pleasure while guests of the city.

Resolved, that we favor and recommend to the governor of this State that in the future he make his appointments of three regular physicians as members of the State Board of Health and the State Board of Medical Examiners from a list of competent and qualified practitioners submitted to him for his guidance by this Association, such lists to be presented to him by our Secretary shortly after each annual meeting of this Association. (Signed)

E. Klaveness, Sioux Falls
E. M. Jones, Mt. Vernon
E. T. Anderson, Platte
Committee.

On motion of Dr. R. S. Hart, the report of the committee was adopted, and copies of the resolutions were ordered sent to the Mitchell papers and to the governor.

Dr. Fred. Treon on behalf of the Committee on Indian Conditions submitted the following report:

REPORT OF COMMITTEE ON INDIAN CONDITIONS

To the House of Delegates:

Your committee appointed to consider the condition of the health of the Indians of this State, as regards the prevalence of tuberculosis and trachoma among the Cheyenne River Indians, have carefully examined the correspondence and inquired into the general situation, and respectfully report as follows:

We find that tuberculosis and trachoma are exceedingly prevalent among the Sioux Indians, over seventy-five per cent being affected with some form of tubercular disease; that this malady is on the increase; that it is accountable for over sixty per cent of the annual death-rate; that with the opening of Indian reservations to settlement the whites are brought into intimate association with the Indians and their health is thereby jeopardized.

We therefore urgently request that the United States Government be asked to take immediate steps to investigate the condition with a view to providing a remedy. (Signed)

Fred. Treon,
T. F. Riggs
F. A. Spafford,
Committee.

On motion of Dr. Fred. Treon, the report of the committee was unanimously adopted.

On motion of Dr. Wm. Edwards, the Secretary was instructed to take steps to establish a bureau for the furnishing of substitutes for physicians who are temporarily absent from their communities.

On motion of Dr. W. R. Ball, the officers of the Association were instructed to select an available list of desirable candidates to recommend to the governor for appointment to state offices.

Dr. J. H. G. Koobs, as chairman of the Committee on Necrology, informally reported that no notice of any deaths during the past year had come to the knowledge of the committee; but if information were received of deaths the committee would ask leave to file a report later for publication.

The report of the transactions of the Council was submitted by the chairman, Dr. Wm. Edwards. (See report of Council proceedings.)

On motion of Dr. R. S. Ball the report was unanimously adopted.

On motion of Dr. Spafford, Dr. R. D. Alway was designated as state editor for The Journal-Lancet for the ensuing year.

On motion of Dr. Klaveness, the House of Delegates adjourned.

COUNCIL PROCEEDINGS

The first meeting of the Board of Councilors was called to order by the President, Dr. W. G. Smith, May 22, 1912, at 4:00 o'clock, in Elks' Hall.

Present at roll-call, Drs. Fred. Treon, F. A. Spafford, James Roane, R. S. Hart (alternate), the President, and the Secretary.

Dr. R. D. Alway submitted the annual report of the Treasurer, as follows:

FINANCIAL STATEMENT

RECEIPTS

June 14, 1911, balance on hand	$ 756.61
August 10, 1911, per capita dues Dist. No. 1	3.00
August 23, 1911, per capita dues Dist. No. 6	3.00
September 16, 1911, per capita dues Dist. No. 1	6.00
October 4, 1911, per capita dues Dist. No. 6	3.00
October 11, 1911, per capita dues Dist. No. 7	3.00
December 5, 1911, per capita dues Dist. No. 6	3.00
January 23, 1912, per capita dues Dist. No. 1	3.00
April 3, 1912, per capita dues Dist. No. 8	129.00
April 4, 1912, per capita dues Dist. No. 8	6.00
April 4, 1912, per capita dues Dist. No. 2	66.00
April 8, 1912, per capita dues Dist. No. 6	108.00
April 14, 1912, per capita dues Dist. No. 2	12.00
April 14, 1912, per capita dues Dist. No. 8	6.00
April 16, 1912, per capita dues Dist. No. 7	117.00
May 4, 1912, per capita dues Dist. No. 3	30.00
May 18, 1912, per capita dues Dist. No. 1	231.00

May 20, 1912, per capita dues Dist. No. 4	48.00
May 21, 1912, per capita dues Dist. No. 2	15.00
May 23, 1912, per capita dues Dist. No. 6	9.00
May 23, 1912, per capita dues Dist. No. 7	5.25
May 24, 1912, per capita dues Dist. No. 9	45.00
	$1,607.86

DISBURSEMENTS

June 16, 1911, warrant No. 20	$ 50.00
June 16, 1911, warrant No. 21	25.80
June 16, 1911, warrant No. 22	150.00
June 16, 1911, warrant No. 23	30.00
July 1, 1911, warant No. 1	10.00
July 1, 1911, warrant No. 2	7.50
July 1, 1911, warrant No. 3	8.30
July 1, 1911, warrant No. 4	10.35
July 1, 1911, warrant No. 5	5.00
July 1, 1911, warrant No. 6	8.26
July 7, 1911, warrant No. 7	100.00
July 10, 1911, warant No. 8	7.35
July 10, 1911, warrant No. 9	11.00
July 10, 1911, warrant No. 10	8.10
September 5, 1911, warrant No. 11	11.00
October 19, 1911, warrant No. 12	14.00
March 2, 1912, warrant No. 13	4.75
March 4, 1912, warrant No. 14	3.75
April 2, 1912, warrant No. 15	256.00
April 5, 1912, warrant No. 16	2.00
April 5, 1912, warrant No. 17	2.75
April 18, 1912, warrant No. 18	22.35
May 20, 1912, warrant No. 19	17.50
	$ 765.76

RECAPITULATION

Receipts	$1,607.85
Disbursements	765.76
Balance	$ 842.10

R. D. Alway, Secretary-Treasurer.

The Secretary-Treasurer presented a bill for $31.60 for postage, etc., expended during the past year.

On motion of Dr. Spafford, the bill was ordered paid.

On motion of Dr. Alway, the report of the Treasurer was referred to the Auditing Committee.

On motion of Dr. Treon, the Council adjourned to meet at the call of the President.

SECOND SESSION

The second meeting of the Council convened at 9:00 o'clock A. M., May 23, 1912, and was called to order by the President.

Upon roll-call, the following responded: Drs. Wm. Edwards, Fred. Treon, F. A. Spafford, James Roane, the President, and the Secretary.

On motion of Dr. Spafford, the minutes of the previous meeting were approved.

Dr. Wm. Edwards, as chairman, on behalf of the Auditing Committee, submitted the following report:

REPORT OF THE AUDITING COMMITTEE

To the President and Members of the Council:

Your committee appointed to audit the accounts of the Secretary-Treasurer beg to report that they have examined his records and vouchers and find his report correct.

(Signed)
Wm. Edwards
H. M. Freeburg
(3d member absent)
Committee.

On motion of Dr. James Roane, the report of the committee was unanimously adopted.

On motion of Dr. Spafford, the Secretary was authorized to procure blank warrants required, and money was ordered appropriated for that purpose.

On motion of Dr. Edwards, the contract with The Journal-Lancet was ordered renewed if satisfactory to both parties.

On motion of Dr. Alway, Dr. Wm. Edwards was elected chairman, and Dr. J. B. Vaughn secretary, of the Council for the ensuing year.

On motion of Dr. James Roane, the salary of the Secretary-Treasurer was fixed at the same amount as that of the previous year and allowed.

On motion of Dr. Edwards, the Secretary was authorized to renew his bond for the ensuing year.

On motion of Dr. Edwards, the sum of $50 was appropriated toward defraying the expenses of Dr. Smiley as delegate to the American Medical Association at Atlantic City.

On motion of Dr. Spafford the Council adjourned.

DISTRICT AND COUNTY ROSTER

ABERDEEN DISTRICT MEDICAL SOCIETY—NO. 1

PRESIDENT
Harris, J. L. .... Webster
SECRETARY
Adams, J. F. .... Aberdeen
Adams, B. A. .... Bristol
Alway, R. D. .... Aberdeen
Atkinson, J. .... Aberdeen
Bailey, F. C. .... Redfield
Baldwin, F. M. .... Redfield
Bates, W. A. .... Northville
Beil, A. .... Selby
Brosseau, J. E. .... Frankfort
Brown, A. E. .... Webster
Bruner, J. E. .... Frederick
Carpenter, G. S. .... Bowdle
Carson, D. J. .... Faulkton
Clark, L. W. .... Onaka
Cook, F. D. J. .... Langford
Countryman, G. E. .... Aberdeen
Crain, F. M. .... Redfield
Creamer, Frank H. .... Dupree
Deertz, J. J. .... Ashton
Dinsmore, W. E. .... Claremont
Edwards, Wm. .... Bowdle
Elward, L. R. .... Athol
Farrell, W. D. .... Aberdeen
Ferguson, W. J. .... Milbank
Geib, D. .... Groton
Gerdes, O. H. .... Eureka
Glasier, W. F. .... Sisseton
Ground, H. T. .... Aberdeen
Gunderman, H. R. .... Selby
Harris, H. G. .... Wilmot
Herman, H. J. .... Webster
Herman, J. D. .... Conde
Hoagland, C. C. .... Veblen
Holmes, A. E. .... Verdon
Holmes, Chas. F. .... Hecla
Hill, Robert .... Ipswich
Hills, E. L. .... Ashton
Homan, C. A. .... Aberdeen
Hurley, S. E. .... Gettysburg
Jackson, E. B. .... Aberdeen
Jenkins, P. B. .... Waubay
Johnston, M. C. .... Aberdeen
Jones, J. D. .... Groton
Jones, R. R. .... Britton
Kerns, G. G. .... Leola
Kettner, J. C. .... Leola
King, H. I. .... Aberdeen
Kjerland, T. N. .... Webster
Kraushaar, F. .... Aberdeen
Kriesel, W. A. .... Watertown
Kruideneir, A. B. .... Aberdeen
Kutnewsky, J. K. .... Redfield
McCauley, C. E. .... Aberdeen
Mertens, J. J. .... Hoven
Miller, E. O. .... Aberdeen
Miller, Frank .... Aberdeen
Miller, J. F. .... Andover
Mitchell, Fred L. .... Orient
Murdy, B. C. .... Aberdeen
Murdy, R. L. .... Aberdeen
Olson, C. L. .... McIntosh
Olson, C. O. .... Groton
Peabody, P. D. .... Webster
Pickering, L. A. .... Aberdeen
Potter, Geo. W. .... Redfield
Rock, H. J. .... Aberdeen
Sampson, I. J. .... Mellette
Sorenson, A. A. .... Aberdeen
Stevens, C. S. .... Mobridge
Totten, F. C. .... Morristown
Twining, G. H. .... Mobridge
Van Dalsen, Frieda .... Huron
Weidman, C. E. .... Cresbard
Whiteside, J. D. .... Aberdeen
Zimmerman, Goldie .... Aberdeen

WATERTOWN DISTRICT MEDICAL SOCIETY—NO. 2

PRESIDENT
Freeburg, H. M. .... Watertown
SECRETARY
Dickinson, S. B. .... Watertown
Bartron, H. J. .... Watertown
Bates, J. S. .... Clear Lake
Benner, W. J. .... Willow Lakes
Bostrom, A. E. .... De Smet
Burleigh, G. H. .... Estelline
Campbell, R. F. .... Watertown
Church, O. E. .... Revillo
Comly, John B. .... Doland
Eddy, J. S. .... Henry
Finnerud, H. M. .... Watertown
Haberman, E. .... De Smet
Hammond, M. J. .... South Shore
Hart, R. S. .... Hazel
Hendricson, Paul .... Vienna
Hill, L. G. .... Watertown
Leach, W. O. .... Carpenter
McIntyre, P. S. .... Bradley
Magee, W. G. .... Watertown
Mullen, R. M. .... Florence
O'Bryan, H. J. .... Watertown
O'Toole, C. S. .... Vienna
Parsons, H. C. .... Watertown
Ramsey, E. T. .... Clark
Schwendener, J. E. .... Bryant
Sherwood, H. W. .... Doland
Smith, S. W. .... Henry
Tarbell, H. A. .... Watertown
Vaughn, J. B. .... Castlewood

BROOKINGS DISTRICT MEDICAL SOCIETY—NO. 3

PRESIDENT
Dyar, B. A. .... De Smet
SECRETARY
Hopkins, N. K. .... Arlington
Cowgill, C. H. .... Iroquois
Foster, J. W. .... Lake Preston
Green, B. T. .... Brookings
Grove, E. H. .... Badger
Miller, E. C. .... Brookings
Scanlan, D. L. .... Volga
Schoonmaker, F. H. .... Arlington
Torwick, E. E. .... Volga

PIERRE DISTRICT MEDICAL SOCIETY--NO. 4

PRESIDENT
Gearhart, N. B. .... Pierre
SECRETARY
Kenney, H. T. .... Pierre
Burnside, I. M. .... Highmore
Hollister, C. M. .... Pierre
Hart, B. M. .... Blunt
Hoyt, O. N. .... Pierre
Hyde, S. M. .... Philip
Lane, W. H. .... Miller
Lavery, Chas. J. .... Fort Pierre
Martin, H. B. .... Harrold
Minard, Ralph W. .... Midland
Riggs, T. F. .... Pierre
Sorenson, M. C. .... Highmore
Stegeman, S. B. .... Onida
Walsh, J. M. .... Fort Pierre
Youngs, A. H. .... Pierre

MITCHELL DISTRICT MEDICAL SOCIETY—NO. 6

PRESIDENT
Reamer, E. F. .... Mitchell
SECRETARY
Bobb, C. S. .... Mitchell
Auld, C. V. .... Plankinton
Ball, W. R. .... Mitchell
Bobb, B. A. .... Mitchell
Bobb, E. V. .... Ethan
Bower, Chas. A. .... Mitchell
Buffaloe, A. J. .... Mitchell
Clark, J. C. .... Mt. Vernon
Clauser, G. A. .... Bridgewater
Cook, J. L. .... White Lake
Delaney, W. A. .... Mitchell
Freyberg, F. W. .... Mitchell
Gifford, A. J. .... Alexandria
Hoyne, A. H. .... Salem
Isaac, J. P. .... Freeman
Jenkinson, H. E. .... Wessington Springs
Jones, E. W. .... Mt. Vernon
Just, Guy H. .... Pukwana
Kidd, F. S. .... Woonsocket
Kimble, Olin A. .... Murdo
Kramer, E. F. .... Letcher
LaShier, B. W. .... Armour
McManus, Clara .... Gann Valley
Merser, Bert .... Bridgewater
Newcomer, J. S. .... Kadoka
Ramsey, Guy .... Salem
Rogers, J. C. .... White Lake
Scofield, H. B. .... Parkston
Smiley, T. B. .... Mt. Vernon
Sprecher, Samuel .... Tripp
Stewart, F. H. .... Kimbal
Templeton, C. V. .... Woonsocket
Treon, Fred .... Chamberlain
Waldner, J. L. .... Parkston

SIOUX FALLS DISTRICT MEDICAL SOCIETY—NO. 7

PRESIDENT
Grove, M. M.........Dell Rapids
SECRETARY
Parsons, J. G........Sioux Falls

Billion, T. J.........Sioux Falls
Bliss, G. W.....Valley Springs
Bower, C. F............Hartford
Brown, S. A.........Sioux Falls
Butler, C. A.........Dell Rapids
Cottam, G. G.........Sioux Falls
Culver, C. F.........Sioux Falls
Devall, F. C...........Garretson
Dott, R. T................Salem
Eagan, J. B.......Dell Rapids
Egan, M. H.........Sioux Falls
Gage, E. E.............Montrose
Gulbranson, G. H.......Canton
Housman, W. McK. Dell Rapids
Keller, S. A.........Sioux Falls
Keller, W. F.........Sioux Falls
Klaveness, E.........Sioux Falls
Moore, W. E.......Sioux Falls
Morrison, C. W..........Canton
Nessa, N. J..........Sioux Falls
Parsons, A. W..Mexico, Mexico
Parsons, J. G.......Sioux Falls
Perkins, E. L........Sioux Falls
Putnam, E. D........Sioux Falls
Putnam, F. I........Sioux Falls
Rider, A. S.........Flandreau
Roberts, T. S.......Sioux Falls
Roberts, W. P.......Sioux Falls
Rundlett, D. L......Sioux Falls
Sawyer, O. O........Dell Rapids
Schwartz, Jos.......Sioux Falls
Sherwood, H. H........Humbolt
Skogen, T. T..........Flandreau
Spafford, F. A.........Flandreau
Stevens, R. G........Sioux Falls
Van Demark, G. E...Sioux Falls
Young, S. A............Lennox
Zetlitz, K..........Sioux Falls

YANKTON DISTRICT MEDICAL SOCIETY—NO. 8

PRESIDENT
Adams, G. S............Yankton
SECRETARY
Roane, James...........Yankton

Anderson, E. T...........Platte
Augspurger, E. D.......Menno
Beall, L. F.................Irene
Berry, S. G..............Tyndall
Black, Wm. ....Tyndall
Blezek, F. M............Tabor
Burkland, P. R.......Vermillion
Bushnell, Wm. F.....Elk Point
Collisi, Nicolas.......Vermillion
Cruickshank, Thos....Vermillion
Duguid, J. O.........Springfield
Eagon, Alonzo ....Olivet
French, H. E..............
........Grand Forks, N. D.
Frink, R. P..............Wagner
Greenfield, J. C............Avon
Gross, C. C.............Yankton
Gyllenhammar, F. N. H.Gayville
Herron, D. A...Comfrey, Minn.
Hermenegild, Klima....Tyndall
Herzberg, Mortimer..Vermillion
Hohf, J. A................Tripp
Hohf, S. M.............Yankton
Kalayjian, D. S...........Parker
Keeling, C. M.......Springfield
Kenaston, H. R........Bonesteel
Kershaw, R. B..........Yankton
Koobs, H. J. G.........Scotland
Livingston, H. F.......Yankton
Lloyd, J. C................Platte
Mead, L. C...........Yankton
Moore, D. V...........Yankton
Moore, F. A..........Lesterville
Morehouse, E. M........Yankton
Murphy, Jennie C.......Yankton
Peterman, A. L...........Parker
Pinard, P. H. A.......Jefferson
Richman, S. H.........Chicago
Rudgers, D. W.........Yankton
Seapy, J. A..............Geddes
Sedlacek, F. A..........Omaha
Stewart, J. L.............Viborg
Stuart, F. I..............Wagner
Swezey, F. A...........Wakonda
Struble, A. J.........Centerville
Willhite, F. V.........Yankton

BLACK HILLS DISTRICT MEDICAL SOCIETY—NO. 9

PRESIDENT
Jackson, R. J.........Rapid City
SECRETARY
Swafford, E. W..........Sturgis

Allen, A. G..........Deadwood
Ashcroft, F. E.......Deadwood
Carr, A...............Hill City
Clough, F. E...........Lead
Freeman, J. W...........Lead
Howe, F. S..........Deadwood
Khrella, Geo.......Rapid City
Long, Martin ....Custer
Minty, F. W.........Rapid City
Sanbo, T. O..........Lemmon
Schneerer, F. B......Deadwood
Smith, W. G............Sidney
Waldron, P. J......Rapid City

ALPHABETICAL ROSTER

Adams, B. A.............Bristol
Adams, G. S............Yankton
Adams, J. F...........Aberdeen
Allen, A. G..........Deadwood
Alway, R. D...........Aberdeen
Anderson, E. T...........Platte
Ashcroft, F. E.......Deadwood
Atkinson, J. ....Aberdeen
Augspurger, E. D. .....Menno
Auld, C. V..........Plankinton
Baily, F. C.............Redfield
Baldwin, F. M..........Redfield
Ball, W. R..............Mitchell
Bartron, H. J........Watertown
Bates, J. S.........Clear Lake
Bates, W. A.........Northville
Beall, L. F.................Irene
Beil, A....................Selby
Benner, W. J......Willow Lakes
Berry, S. G..............Tyndall
Billion, T. J.........Sioux Falls
Black, Wm. ....Tyndall
Blezek, F. M............Tabor
Bliss, G. W.....Valley Springs
Bobb, B. A.............Mitchell
Bobb, Clyde S...........Mitchell
Bobb, E. V...............Ethan
Bostrom, A. E.........De Smet
Bower, Chas. A.........Mitchell
Bower, C. F.........Hartford
Brosseau, J. T.........Frankfort
Brown, A. E...........Webster
Brown, S. A.........Sioux Falls
Bruner, J. E...........Frederick
Buffaloe, A. J...........Mitchell
Burkland, P. R.......Vermillion
Burleigh, G. H.........Estelline
Burnside, I. M........Highmore
Bushnell, Wm. F.....Elk Point
Butler, C. F.........Dell Rapids
Campbell, R. F.......Watertown
Carpenter, G. S..........Bowdle
Carr, A................Hill City
Carson, D. J............Faulkton
Church, O. E............Revillo
Clark, J. C.........Mt. Vernon
Clark, L. W..............Onaka
Clauser, G. A.......Bridgewater
Clough, F. E.............Lead
Collisi, Nicolas........Vermillion
Comly, John B.........Doland
Cook, F. D. J..........Langford
Cook, J. L.........White Lake
Cottam, G. G........Sioux Falls
Countryman, G. E......Aberdeen
Cowgill, C. H..........Iroquois
Crain, F. M.............Redfield
Creamer, F. H...........Dupree
Cruickshank, Thos....Vermillion
Culver, C. F.........Sioux Falls
Deertz, J. J..............Ashton
Delaney, W. A........Mitchell
Devall, F. C...........Garretson
Dickinson, S. B.......Watertown
Dinsmore, W. E.......Claremont
Duguid, J. O.........Springfield
Dyar, B. A...........De Smet
Eagan, J. B.......Dell Rapids
Eagon, Alonzo ....Olivet
Eddy, J. S................Henry
Edwards, Wm............Bowdle
Egan, M. H.........Sioux Falls
Farrell, W. D..........Aberdeen
Ferguson, W. J.........Milbank
Finnerud, H. M......Watertown

Foster, J. W.....Lake Preston
Freeburg, H. M......Watertown
Freeman, J. W.............Lead
French, H. E..............
........Grand Forks, N. D.
Freyberg, F. W.........Mitchell
Frink, R. P..............Wager
Gage, E. E............Montrose
Gearhart, N. B............Pierre
Geib, D..................Groton
Gerdes, O. H............Eureka
Gifford, A. J........Alexandria
Glasier, W. F.........Sisseton
Green, B. T..........Brookings
Greenfield, J. C............Avon
Gross, C. C.............Yankton
Ground, H. T..........Aberdeen
Grove, E. H.............Badger
Grove, M. M........Dell Rapids
Gulbranson, G. H.......Canton
Gunderman, H. R........Selby
Gyllenhammer, T. H. N.Gayville
Haberman, E.........De Smet
Hammond, M. J...South Shore
Harris, H. G.............Wilmot
Harris, J. L.............Webster
Hart, B. M................Blunt
Hart, R. S.................Hazel
Hendricson, Paul.........Vienna
Herman, H. J..... ....Webster
Herman, J. D.............Conde
Hermenegild, Klima....Tyndall
Herron, D. A...Comfrey, Minn.
Herzberg, Mortimer..Vermillion
Hill, L. G............Watertown
Hill, Robert..............Ipswich
Hills, E. L..............Ashton
Hoagland, C. C...........Veblen
Hohf, J. A................Tripp
Hohf, S. M.............Yankton
Hollister, C. M............Pierre
Holmes, A. E............Verdon
Holmes, Chas. F...........Hecla
Homan, C. A.........Aberdeen
Hopkins, N. K.........Arlington
Housman, W. McK..Dell Rapids
Howe, F. S..........Deadwood
Hoyne, A. H..............Salem
Hoyt, O. N...............Pierre
Hurley, S. E.........Gettysburg
Hyde, S. M...............Philip
Isaac, J. P............Freeman
Jackson, E. B........Aberdeen
Jackson, R. J.........Rapid City
Jenkins, P. B...........Waubay
Jenkinson, H. E........ ......
...........Wessington Springs
Johnston, M. C.........Aberdeen
Jones, E. W........Mt. Vernon
Jones, J. D...............Groton
Jones, R. R..............Britton
Just, Guy H............Pukwana
Kalayjian, D. S...........Parker
Keeling, C. M.......Springfield

Keller, S. A.........Sioux Falls
Keller, W. F........Sioux Falls
Kenaston, H. R........Bonesteel
Kenney, H. T.............Pierre
Kerns, G. G..............Leola
Kershaw, R. B..........Yankton
Kettner, J. C..............Leola
Khrella, Geo.......Rapid City
Kidd, F. S..........Woonsocket
Kimble, Olin A...........Murdo
King, H. I.............Aberdeen
Kjerland, T. N..........Webster
Klaveness, E.........Sioux Falls
Koobs, H. J. G.........Scotland
Kramer, E. F.........Letcher
Kraushaar, F. ....Aberdeen
Kriesel, W. A........Watertown
Kruidenier, A. B.......Aberdeen
Kutnewsky, J. K........Redfield
Lane, W. H..............Miller
LaSheir, B. W..........Armour
Lavery, Chas. J......Fort Pierre
Leach, W. O..........Carpenter
Livingston, H. F........Yankton
Lloyd, J. C................Platte
Long, Martin ....Custer
McCauley, C. E........Aberdeen
McIntyre, P. S..........Bradley
McManus, Clara...Gann Valley
Magee, W. G.........Watertown
Martin, H. B...........Harrold
Mead, L. C.............Yankton
Merser, Bert ......Bridgewater
Mertens, J. J.............Hoven
Miller, E. C..........Brookings
Miller, Frank...........Aberdeen
Miller, E. O..........Aberdeen
Miller, J. F............Andover
Minard, Ralph W.......Midland
Minty, F. W.........Rapid City
Mitchell, Fred L..........Orient
Moore, D. V............Yankton
Moore, F. A..........Lesterville
Moore, W. E.......Sioux Falls
Morehouse, E. M........Yankton
Morrison, C. W..........Canton
Mullen, R. M...........Florence
Murdy, B. C...........Aberdeen
Murdy, R. L...........Aberdeen
Murphy, Jennie C.......Yankton
Nessa, N. J..........Sioux Falls
Newcomer, J. S........Kadoka
O'Bryan, H. J........Watertown
Olson, C. L............McIntosh
Olson, C. O..............Groton
O'Toole, C. S............Vienna
Parsons, A. W..Mexico, Mexico
Parsons, H. C........Watertown
Parsons, J. G.......Sioux Falls
Peabody, P. D..........Webster
Perkins, E. L........Sioux Falls
Peterman, A. L...........Parker
Pickering, L. A........Aberdeen
Pinard, P. H. A.......Jefferson
Potter, Geo. W..........Redfield

Putnam, E. D.......Sioux Falls
Putnam, F. I........Sioux Falls
Ramsey, E. T.............Clark
Ramsey, Guy..............Salem
Reamer, E. F...........Mitchell
Richman, S. H.........Chicago
Rider, A. S..........Flandreau
Riggs, T. F...............Pierre
Roane, James ....Yankton
Roberts, T. S.......Sioux Falls
Roberts, W. P.......Sioux Falls
Rock, H. J.............Aberdeen
Rogers, J. C.......White Lake
Rudgers, W. D..........Yankton
Rundlett, D. L.......Sioux Falls
Sampson, I. J...........Mellette
Sanbo, T. O..........Lemmon
Sawyer, O. O........Dell Rapids
Scanlan, D. L.............Volga
Schneerer, F. B......Deadwood
Schwartz, Jos.......Sioux Falls
Schoonmaker, F. H..Arlington
Schwendener, J. E........Bryant
Scofield, H. B..........Parkston
Seapy, J. A...............Geddes
Sedlacek, F. A..........Omaha
Sherwood, H. H........Humbolt
Sherwood, H. W.........Doland
Skogen, T. T..........Flandreau
Smiley, T. B.........Mt. Vernon
Smith, S. W..............Henry
Smith, W. G............Sidney
Sorenson, A. A........Aberdeen
Sorenson, M. C......Highmore
Spafford, F. A.........Flandreau
Sprecher, Samuel..........Tripp
Stegeman, S. B...........Onida
Stevens, C. S.........Mobridge
Stevens, R. G........Sioux Falls
Stewart, F. H..........Kimbal
Stewart, J. L............Viborg
Struble, A. J..........Centerville
Stuart, F. I.............Wagner
Swafford, E. W.........Sturgis
Swezey, F. A..........Wakonda
Tarbell, H. A........Watertown
Templeton, C. V....Woonsocket
Torwick, E. E............Volga
Totten, F. C........Morristown
Treon, Fred.........Chamberlain
Twining, G. H........Mobridge
Van Dalsen, Frieda......Huron
Van Demark, G. E...Sioux Falls
Vaughn, J. B.........Castlewood
Waldner, J. L..........Parkston
Waldron, P. J......Rapid City
Walsh, J. M..........Fort Pierre
Weidman, C. E.......Cresbard
Whiteside, J. D........Aberdeen
Willhite, F. V.........Yankton
Young, S. A............Lennox
Youngs, A. H.............Pierre
Zetlitz, K..........Sioux Falls
Zimmerman, Goldie ..Aberdeen

PRESIDENT'S ADDRESS

By William G. Smith, M. D.

SIDNEY, SOUTH DAKOTA

Honored as I have been, not only by the citizens of my state, but by an official body of leading citizens of all the states,—for which honor I am sincerely grateful,—I must confess to you, my brother practitioners of South Dakota, that the "red-letter" day of my career, as I look at it, was when you, my associates in my chosen life-work, honored me by elevating me to the presidency of the South Dakota Medical Association.

It is the greatest honor that I ever expect to attain; and I want to express to you my deep, sincere, and heartfelt gratitude, and my appreciation of the confidence reposed in me.

I am by nature a grateful man for favors and honors bestowed upon me; and I assure you that it is with fear and trembling that I take up your time in making this annual address, for I well know and realize that nothing I can say will compare, in logic or eloquence or value, with the persuasive logic, the soul-stirring eloquence, and the inestimable value of the other addresses to be delivered before this worthy gathering of medical men.

You gather here from the active work in the medical world, wherein your conflicting interests make your nerves tense and whet your intellect to the keenest edge, for the public health is confined to your keeping, and your every working moment is ladened with anxiety and perplexing problems, causing you to ever strive for the good of your fellow man.

This Association has accomplished much in the past, and has especially done a vast amount of good in educating the people how to care for their health; but what we have done is nothing to what we shall do as the spirit of amity increases among us, our past being only a spur to us to do greater and nobler things.

This Association should contain as members every licensed practitioner in the state, and I believe it would be a wise move to empower the Secretary to secure a solicitor to accomplish this special work, making proper appropriations for the same; and the fact should be as thoroughly developed, with as much publicity as is possible, that the various medical associations are in the interest of the public health, and to protect the public health, by educating the public generally in the best and most approved methods of preventing disease, and, in this way, showing the people, that medical organizations are not to protect the doctors, but to assist them in being more proficient in their life-work.

When we review the work of medical men in their efforts to preserve the public health, to develop preventive measures, giving them publicity to all mankind so as not only to prevent disease, but to develop happiness, which is a twin sister of health, we can fully understand the New Public Health theories which present practical problems and seek the source of infection, whether it be carried by the mosquito after being infected with the yellow fever; or by the flea after being infected by biting the bubonic-plague-infected individual; or by the rodent, as was determined to be the case by Dr. Rupert Blue in his effort to eradicate the bubonic plague from the infected, rat-stricken districts of China-town, in San Francisco; or by the infected fly; or, for that matter, by the non-infected house-fly carrying millions of bacteria from the infected excreta and discharges to the food-stuffs of our daily life. Thus the route of infection, through the blood, the alimentary canal, and the lungs is clearly developed, and the cause of bubonic plague, yellow fever, leprosy, typhoid fever, and other infectious diseases is being ferreted out.

Even the old style sanitary inspector, who was usually a member of the board of health, was preceded by older scavenger methods, as was illustrated by the buzzards in South America, the hogs in portions of Mexico and the dogs in Constantinople; but these crude methods of scavenger disposals were improved upon by the old style of sanitary inspectors, who usually did condemn everything in sight, from the garbage-pail to the plumbing in the houses of the wealthy citizens.

Infections, often called contagious diseases, continued to exist and multiply nevertheless, and the result was a more thorough search and study of all the producing causes of disease as then taught by medical authorities, which resulted gradually in isolating the infectious elements, or bacteria, which cause the infectious diseases.

The New Public Health of today ceases to interest itself with the garbage-pail, the scavenger systems, the filth-pools, especially in tropical climates, except to study their infectious contents and the infections which they contain, which, of course, makes them of very vital importance.

The modern sanitary inspector makes every effort to seek out the infections, the infected individuals, and the methods of the carrying of the infections and the route through which the infectious excreta and discharges of the various infections of infected individuals travel, so as to protect the non-suspecting individuals. Why should so many states pass "antispit" laws? Do you not believe that the tubercular bacillus in the sputum of infected individuals can be carried in the dust to the lungs of a healthy person and there start up active work devouring its captive? I was glad to see, last month, that New Jersey was the first state to lead the country in passing a law which provided for compulsory removal and detention of tubercular cases. Minnesota came very near leading in this movement last winter, and I believe our State Association should commend this legislation to the incoming legislature for passage.

I would urge upon our Association to pass resolutions favoring the above, as well as an up-to-date sanitary law. North Dakota did well last year along this line. As our population increases in density, the greater is the real need of thorough sanitation and sanitary laws, which can be brought about only by the development of public sentiment, gained by knowledge of the real need of the same, and this ought to be taught in every grade in every public and private school, with more adequate instruction in proper health hygiene and the causes, the prevention, and the sanitation of all communicable diseases.

The law of the State ought to standardize sanitary privies and compel their building at every school-house in the state as an object lesson to the children to take home to their parents, and the sanitation and plans for their building ought, by law, to be under the care and inspection of the State Board of Health.

Human excreta or discharges should never be allowed to be used as land fertilizers, nor be allowed to enter any irrigation-ditch or other water-ways of the state.

It is time for, and it is the duty of, the State to stop the polluting of the lakes and streams of our state with untreated sewerage, excreta, or discharges from the human body, and no building for public gatherings or public instruction should be allowed, by law, to empty its sewerage into any stream in the state until the same has been properly treated by one of the many apparatuses that have been thoroughly tested by the State Board of Health and proven efficient.

The cost is a small item when compared with the health, happiness, and lives of the people.

No building intended for the housing of many people, or to be used for public gatherings, should be allowed to be constructed until the plans have been passed upon by the State Board of Health as to their meeting proper requirements of sanitation.

Instead of following up the custom of having our jails and prisons in the basements of the town halls and court-houses, thus continuing the old plan of dungeons in the feudal castles, we should be far wiser, and the health of the prisoners would be much better cared for, if the plans of these jails and prisons were under the supervision of a competent State Board of Health.

In every corner of our nation are a widespread desire for, and activity in, civic betterments. Certain privileges are given up whenever persons enter the community existence, which they formerly possessed and enjoyed; but, in lieu thereof, they are entitled to receive the community protection of their health, their property, and their peace of mind. These are so commingled that when any untoward condition affects the one, all three are necessarily affected, and the converse is true also. Thus it is readily seen that it is quite as much the duty of a state to protect its citizens from a medical standpoint as it is to guard their peace of mind and their property-rights.

Safeguards must always be thrown about persons entering a community existence to protect them from incursions of community diseases. It is a biological law that when more than a certain number of a given species are congregated on a given area of ground, unless artificial precautions are taken, they will die by reason of the noxious elements begotten by their own discharges. Persons entering such a communal existence are entitled, as of right, to protection against discharges of every other person in the community. Therefore, the State, which we may take as the communal unit in this case, is required by its citizenship to provide adequate and proper means for the disposal of sewerage, garbage, and other wastes. This obligation not only implies that the State will care for the discharges of the mass, but it also makes it the duty of the State to compel a proper disposal of wastes by the individual.

In order that the individual may not endanger the health of the community mass, he is required by the State to protect himself against diseases, as, for example, the screening of cisterns to prevent yellow fever and the rat-proofing of houses to prevent bubonic plague. More than this: It is required of him that he shall not expose himself to disease, and, should he contract a communicable disease, that he shall not allow other persons to expose themselves to him. It is the duty of the individual citizen to prevent his infected discharges from gaining entrance, in an infected state, into the body of any other person in the community. Thus it is the duty of the attendant of a typhoid-fever patient to disinfect his discharges before they are disposed of. On the other hand, it is the duty of the community or State, as a mass protector, to pass sanitation laws and authorize a board to enforce them to protect the community. This is the reason for the enactment of laws by the State governing lighting, heating, and ventilation; the purity of foods; and, above all, to secure and maintain a safe potable water supply.

In order that the community may enact proper laws looking to the protection of the public health, and in order that these laws may be justly enforced and intelligently obeyed, it is necessary that the community be well grounded in the basic principles upon which the laws rest, and the rationâle upon which their enforcement depends. It is, therefore, an important duty of the State to educate all of its citizens along these broad lines of hygiene and sanitation. This will react in the conservation of health and the production of happiness. These are the broad general considerations of the duty of the State to its citizens from a medical standpoint, and this is the foundation upon which the superstructure of detail is erected.

It is quite as much the duty of the citizenship to support and promote the public health agencies of the state, the county, and the municipality, as it is to provide schools and to insure commercial stability. The per-capita taxation for the conservation of health should be generally increased. In only two or three states of the Union is this taxation at all adequate, and I am very sorry to be compelled to admit that South Dakota today stands the lowest in financial support of its Board of Health. I believe that this would be willingly increased in the remainder of the states, if the community or people of each state could be brought to understand and see that moneys spent in the protection of the public health are not an expenditure, but a permanent investment, and the denser the population the greater the need. The necessity for the enlargement of the powers and duties of State Boards of Health is nowhere more apparent than in the rural districts. Many of these districts are entirely without health officers, while those districts which have such officials pay them very poorly and demand little of them. On account of the increasingly close proximity with the cities, by reason of rapid transit, the country has increased in importance in its sanitary scheme of things. The farm, as the commissary of fresh foods for the city, has come to play a considerable rôle in the spread of communicable diseases; and many investigations of typhoid-fever outbreaks in this country have repeatedly met with instances in which a proper care of the sanitation of the farms would have saved many lives and much money. In order that the agencies for the conservation of human life may discharge their duties with the highest efficiency, it is not only necessary that they should co-operate, one with the other, but also that their advances should be simultaneous.

Just as the state health authority is the correlator of the efforts of the county and municipal boards of health, so the federal health agencies are the correlators or co-ordinators of the sanitary efforts of the states, one with the other, and the Nation as a whole with the outside world.

Education and co-operation will more fully develop the duty of the State to the citizen, and the citizen to the State.

The most valuable production of the State is its citizenship, and the State exists to insure life, liberty, and the pursuit of happiness to them. The Nation, the State, and the citizen appropriate very large sums of money annually, to improve the breeding of horses, cattle, sheep, and hogs, and our State has appropriated many thousands of dollars to cause the extermination of the wolf and the coyote, so as to protect the live-stock industry, and all this is commendable; but did you ever stop to think that the unborn millions of boys and girls are crying out to the State and the Nation for better blood and for a better parentage, and should not the State and the Nation heed this demand and do their duty toward the unborn millions who will constitute our future citizenship; do their duty in educating the parents in the personal hygiene and mental development of children—how to care for and how to develop a child's body into perfect manhood and perfect womanhood, and also educate the children how to properly care for themselves?

The State should compel instruction in the public schools, under the supervision of the State Board of Health, in personal hygiene, and as far as practicable the detection of personal defects and disabilities, and the prevention and sanitation of infectious diseases.

I would advocate that in the important matter of marriage that our State should be progressive, going even further than Indiana and Illinois, and not only require a health certificate before the issuance of a license, but also make compulsory a medical and physical examination of every applicant for marriage. I believe the State owes it to the unborn children to prohibit marriages when the applicants, or either of them, are afflicted with a disease which past experience teaches us can be transmitted to the offspring.

While on this marriage question, I want to say that I believe the State should pass a law prohibiting marriages while either one of the applicants is under arrest, indictment, or sentence for crime, which marriage today acts to prevent the wife from testifying against her husband or *vice versa*, which conditions often help the guilty party to escape being punished by law.

No matter how strict we make our laws or how well they may be enforced, there will be born enough imbeciles and disease-inherited children. Better by far prevent the birth, by lawful means, of feeble-minded children than spend public moneys to build homes and care for them, although the latter is very laudable.

While in Mexico the effects of poor marriage laws were brought vividly to my mind by the existing conditions, for there I saw a mother and son living together as husband and wife. Visit the southern countries and you will see the sad results of such practice in children born with most serious disabilities, which will follow them through their lives. The above conditions are not tolerated in our country, but, in a measure, some things lead to the same results.

Gentlemen, do you believe when a patient who has been declared insane and sent to Yankton or any other asylum for the insane, shows signs of improvement that he or she should be allowed, under the law, to go back home, enter the marriage relation, and bring offspring into the world? Out of more than 225 public hospitals for the insane, with a population of fully 150,000, only seventy-five, or less than one-third of them, make any provision for their tubercular inmates, and this, too, when the percentage of death from tuberculosis among the insane is from fifty to two hundred per cent higher than among the general population. Thus is seen the need of the special provision. Because of the habits of the insane and the difficulty in teaching many of them cleanliness, the National Association says that separate buildings should be provided for the insane when tuberculosis is at all prevalent. In many cases when insane persons, through outdoor sanatorium life, have been cured of tuberculosis, their minds have also been helped and some have been discharged as mentally sound who would otherwise have died both insane and tuberculous. Should such persons be allowed to enter the marriage relation? I positively do not believe so.

Why not lead the way to a higher and better marriage law, and in this way lend our aid in producing a healthier and nobler race of boys and girls. I believe a good way to commence would be to ask our legislature to pass such laws after a full investigation of the subject. I also believe it to be the duty of the State to its citizens to re-organize the State Board of Health and make it a power for good, by requiring that each member devote all his time to matters pertaining to the public health and sanitation. I think it was Henry Ward Beecher who remarked that the best committee that could be appointed was a committee of three with two of them sick abed. From experience in enforcing the Pure Food Law and some other laws, I believe the re-organization should put the responsibility upon one person, and I would advocate the re-organization so as to consist of a State Superintendent of Health with an assistant to be appointed by the governor from a list of three for each place, recommended to him by the State Medical Association, and the county and municipal boards should be cared for in this organization along these lines, thus getting as far away as possible from "political pulls." In this way I believe that the ablest medical men in the State would be serving upon the public health boards. Liberal salaries should be provided with strict injunctions against other lines of work, and liberal appropriations should be made for the Board.

Not only should it be the duty of such Superintendent of Health and his assistant to look after and eradicate infectious and communicable diseases, and look after and supervise the personal hygienic education in public schools, but also to have complete charge of all sanitation, plans for the construction of public buildings, and sewerage and sewerage disposal, and they should establish works of research into the methods of development of infections, as well as into the best methods of eradicating the same, and should work in conjunction with the national, county, and municipal health officers. The Board should be given power to establish rules of sanitation and methods of disposal of all infected materials. We need efficiency in health matters.

I believe this Association should go on record at this meeting endorsing the establishment of a Federal Independent Public Health Service, as presented in Senate Bill No. 1, called the "Owen bill."

I am of the opinion that the various State Associations should urge the formation of a National Medical Examination Board, whose license should be recognized by the individual states, and in this way protect the younger medical men of today from being compelled to take examinations whenever they desire to cross their state boundaries to pursue their practice in old age, and I am fully in favor of the requirement of some of the universities or medical departments in requiring a year's work in actual hospital practice, and I should be pleased to see this Association fully discuss these matters.

Medical inspection, or limited medical inspection, has been authorized and tried in eighteen states, and has proven of very great benefit. While such inspection has been tried more thoroughly in city schools, it is being extended to the smaller towns and in North Dakota the experiment has been extended to the rural schools. The results so far have been a great improvement on the old methods.

This is not a selfish movement agitated by physicians, for the multitude of physicians receive no personal good from it. Medical men, medical societies, and medical organizations are not selfish and do not use their organizations for selfish purposes. Nearly, if not all, medical men are in favor of limited medical inspection, and the parent should not, and does not, oppose limited medical inspection, which in many city and village schools is done by the employment of a graduate nurse, and it is of inestimable value for the proper care of the teeth alone, which practically means their preservation, thus, in a great measure, producing health and happiness, while the absence of such means the loss of both health and happiness. This was the more effectively brought to my mind during my attendance at the Chicago Eye, Ear, Nose, and Throat College last winter, for it was a frequent occurrence to see children brought to the clinic by their parents, who reported that the attending nurse at school advised the parents that the child had enlarged tonsils, nasal obstructions, or poor eye-sight, or that they were mouth-breathers; and from information gathered I believe in the employment of a graduate nurse for limited medical inspection and instruction in personal hygiene in every school town of one thousand population or more. Instructions by the nurse on health topics should be given as approved by the State Board, which should include how to prevent the spread of infectious diseases.

As a result of scientific research and its application, the neurologist and pathologist have accomplished wonders for backward children. Within the past few years, research has discovered that school-teachers have been blundering fearfully in their treatment of about one-third of their pupils, whom they pronounced miscreants and blockheads when, as a matter of fact, they simply needed treatment for defective eye-sight, defective hearing, or malnutrition.

I have thought ofttimes that it would be a wise move to advocate correspondence courses of instruction in methods of contagion and results, as well as instruction as to the diseases that are considered hereditary, such as insanity, epilepsy, syphilis, and other such diseases. In some form or other such work is being done in some states, but not, so far as I know, systematically in any state. The work is being carried on in women's clubs and like organizations; and with proper directions by the State Board of Health, it can be carried out successfully in South Dakota with immediate and gratifying results, especially so if the teachers in all the schools would take hold of the subject.

Lack of congenial environment and over-work are driving many good boys and girls from the farm and home, and their minds and souls are being blighted by want of proper training and proper home instruction, even in this day of our boasted education and correspondence courses in many walks of life. Cuba, through education, is no longer a yellow-fever den, but has become a national health resort, the best in the West Indies, due entirely to medical research and active medical work of unselfish medical men under government supervision.

Government experts are now constantly at work patroling the sea coasts, "studying carefully the antics of the sportive clam, the elusive mackerel, and the bachelor seal," while the much more important subject of the mental and physical development of the teeming millions of little children under school-age is being sadly neglected.

It is sad to think that this home development of the human offspring is being so neglected, and the hidden talents and energies of nearly all boys and girls born among us, should, and could, be developed if we spent half the time, half the study, or half the money that is being spent in the development of the non-human race. According to the official government enumerators, one out of every twelve marriages in this country is annulled by divorce. Juvenile instruction will do more than antidivorce legislation to remove this blight from the American family.

The sterilization of all patients declared insane, syphilitic, confirmed criminals, epileptics, and imbeciles, is a subject worthy of thought and thorough investigation, and compulsion by law, if found efficient and advisable. Indiana, Connecticut, California, Iowa, and New Jersey provide for sterilization of criminals and defectives.

Forty per cent of the blindness in patients in asylums for the blind, is caused by gonorrheal infections. Extended investigations have shown that the Credé treatment of dropping a drop of 1 or 2 per cent nitrate of silver solution in each eye of the infant at birth, has reduced the number of cases of blindness caused by gonorrheal infection of the discharges during birth, from 10 per cent to 1-10 of 1 per cent. No harm can come from this treatment, and many a person is thus prevented from going through life blind. It is a wise treatment, and its use should be compelled by law, for one can never tell without a microscopical examination when to suspect the disease. Eternal vigilance for the perfect sight of the new-born demands it.

I would advocate that this Association plan a resolution, urging our next legislature to pass a law prohibiting the exhibition of deformed persons in South Dakota, as well as a law to prohibit public hypnotic exhibitions. No good can come from such exhibitions, and only harm results. "We do need our Rockefeller and Wistar institutes, the research laboratories of our great medical schools, and our Carnegie Institute laboratories, the research divisions of various federal departments, our endowments for the study of cancer, diseases of old age, tuberculosis, tropical medicine, etc., etc. These institutions are pre-eminently for the solving of medical problems. As yet we lack social institutions that will adequately apply this human need. The time is past when the individual family can care for its own health. Matters of pure water, food, and air; of hours of labor and recreation; protection from epidemics; prevention of industrial disease and accident, are matters of social, more than they are of individual, accomplishment. People think deeply and spend money freely for health, but it is mainly for individual, not social health."

Before closing I want to acknowledge many valuable suggestions which I have received from Dr. Rupert Blue, of the United States Hospital and Marine Service; Dr. Frank Todd, of Minneapolis; Dr. M. Herzberg, of Vermillion; Dr. J. W. Freeman, of Lead City; Dr. F. E. Ashcroft, of Deadwood, as well as from the articles of Dr. H. W. Hill in THE JOURNAL-LANCET. THE JOURNAL-LANCET has been exceedingly courteous to me during my term as President of this Association, and it has taken great interest in the public health, forwarding, at its own expense, advance proofs of each of Dr. Hill's able series of articles on the "New Public Health" to the public press of our state. I am sincerely grateful for all these courtesies, and on behalf of the physicians of our state I express thanks for them.

Brother practitioners, I appreciate your very kind attention, and your forbearance with the length of this paper, and I ask your hearty cooperation in advocating any of the suggestions if they meet with your approval.

TRANSACTIONS OF THE NORTH DAKOTA STATE MEDICAL ASSOCIATION

TWENTY-FIFTH ANNUAL MEETING

1912

OFFICERS AND COMMITTEES

PRESIDENT

ALEXANDER J. McCANNEL, M. D. .... Minot

FIRST VICE-PRESIDENT

MURDOCK McGREGOR, M. D. .... Fargo

SECOND VICE-PRESIDENT

R. HUDSON BEEK, M. D. .... Lakota

THIRD VICE-PRESIDENT

ERIC P. QUAIN, M. D. .... Bismarck

SECRETARY

HEZEKIAH J. ROWE, M. D. .... Casselton

TREASURER

FRANK J. KING, M. D. .... St. Thomas

COUNCILORS

JOHN D. TAYLOR, M. D. .... Minot
EDGAR A. PRAY, M. D. .... Valley City
GUSTAVE GOLDSETH, M. D. .... Jamestown

MEMBERS OF MEDICAL DEFENSE

A. J. McCANNEL, M. D. (five years) ...... Minot
H. H. HEALEY, M. D. (four years) .. Grand Forks
C. N. CALLENDER (three years) .... Fargo
L. S. PLATOU (two years) .... Valley City
E. P. QUAIN, M. D. (one year) .... Bismarck
H. G. WOUTAT, M. D. .... Grand Forks
F. G. BENN, M. D. .... Kulm

The twenty-fifth annual meeting of the North Dakota Medical Association was held at Valley City, May 14 and 15, 1912.

The meeting was called to order by the President, Dr. C. E. Spicer, and the address of welcome was given by Dr. L. S. Platou, mayor of Valley City, the response being given by Dr. A. J. McCannel, vice-president of the Association.

The papers presented, both by the local physicians and those invited from abroad, were interesting and instructive, and the discussions were spirited and pointed.

The President, in his address, reviewed the progress of medical science in preventing disease and showed how the scientific handling of plagues had actually obliterated the dreaded scourges of former years. He alluded to the school code of the state, which underwent a complete revision during the meeting of our last legislature, and regretted that school-inspection had not been made mandatory.

The President offered the following recommendations for consideration:

First, That any person whose name appears on the program of any session of the Association, who shall fail to present his paper himself or by proxy, shall not be privileged to read another paper for three years. Second, the establishment of a national board of medical examiners whose certificate shall entitle its holder to practice without further examination or additional fees in any state in the Union. Third, The passage by the Association of resolutions endorsing the bill known as the "Owen bill" now before the United States senate and providing for the establishment of a National Department of Health and protesting the Smoot bill recently introduced as a compromise measure. Fourth, The establishment by the American Medical Association of a physicians' sanatorium, to be maintained by voluntary gifts and optional assessments. Fifth, The amendment of the state law regarding medical inspection of schools so that the act shall be mandatory. Sixth, The employment by the year of an attorney to confer with the State Board of Medical Examiners in the prosecution of violations of the medical-practice act and in the prosecution of criminal abortionists operating in the state. Seventh, That an appropriation of money be made annually by the Association to defray the expenses of a delegate to the conferences on medical education, medical legislation, and public health.

These recommendations were approved with the following changes: First recommendation, by adding thereto, "unless excused by the program committee;" by adding to the sixth the provision that the same attorney be employed as the one employed by the committee on medical defense.

Prof. E. F. Ladd, Food Commissioner of the State, requested the Association to appoint one of a committee of three with the Food Department and the Pharmaceutical Association each providing one, to consider the following questions:

First, What variation from the United States Pharmacopeia strengths shall be permissible in standard drugs, extracts, etc.? Second, What regulation shall be made regarding drugs which are liable to deteriorate, such as spirits of nitrous ether, etc.? Third, Are the claims made for certain patent and proprietary products justifiable?

A committee to whom was referred these propositions reported favorably, and their report was adopted and the naming of the person to represent the Association was left to the President-elect, and he appointed Dr. Archie D. McCannel, of Minot, a registered pharmacist.

A committee appointed to express the views of the medical profession of the state on the Owen bill now pending in Congress, reported as follows: "Your committee on resolutions, whose duty it is to embody the sentiments of the North Dakota Medical Association with reference to the merit of senate bill No. 1 (the Owen bill), beg leave to report as follows:

"Whereas: It is the sense of this organization that in the interest of the people, of all the people of North Dakota, and of the United States, the words of one of the world's statesmen, Beaconsfield, 'The care of the public health is the first duty of the statesman' are true; and, whereas, senate bill No. 1 embodies in its provisions only what can reasonably and sensibly be demanded to that end, by all the people for all the people, and despite the frantic efforts that are being made by misguided would-be philanthropists and by those who oppose its passage from selfish grounds only, 'right is right and will prevail ultimately;' resolved, that we, the members of the North Dakota State Medical Association, in annual convention assembled, do hereby respectfully request and, in the interest of our citizens as the guardians of their physical welfare, demand that our representatives in Congress do give their hearty, united, and instructed effort toward the passage of the Owen bill in its entirety. We stand for the principle involved. Compromise in this instance sacrifices what is dear to your home, your neighbor, and all your constituents.

"Resolved, further, That a copy of this resolution be spread upon the minutes of the State Association, and that the Secretary be instructed to forward to Senators McCumber and Gronna and to Representatives Hanna and Helgeson, individually, copies of these resolutions, with the signature of every member favoring this in attendance at this, our annual meeting, and we request these, our national representatives, to give the bill the support that its provisions demand, both in the interests of American citizenship and from every broad and economic standpoint."

It was also decided that Councilors and members of the House of Delegates become active in forwarding petitions to our members in Congress, urging them to support the measure.

The date of next meeting was not fixed, and it was decided that meetings of adjoining states be considered prior to arranging the dates for the 1913 meeting so that a conflict of dates might be avoided.

On motion the contract between THE JOURNAL-LANCET and the Association of North Dakota was terminated, and it was decided that we publish the transactions in book form as previously done.

Dr. V. H. Stickney, Delegate to the National Association, read a full report, which was approved and his fidelity commended.

The committee on Medical Defense reported that a contract had been made with Attorneys Bosard & Twiford, of Minot, to prepare and keep up to date a brief on questions of malpractice, to prepare answers and pleadings in all cases referred to them by the committee, and to prepare all such cases, when necessary, for the Supreme Court. For such service they are to be paid $300 a year for a term of three years. The attorneys also agree to attend and try all cases referred to them in the district and supreme court, the association to pay the attorney's personal expenses, and the cost of their stenographic work.

Drs. A. J. Patterson, Lisbon; H. G. Woutat, Grand Forks, and F. G. Benn, Kulm, were recommended to the Governor for appointment on the State Medical Examining Board.

The next meeting will be held at Minot.

THE NEW PUBLIC HEALTH—SIXTH PAPER

WHAT THE INDIVIDUAL MAY DO TO PROTECT HIMSELF FROM INFECTIOUS DISEASES

By H. W. Hill, M. D., D. P. H.
Director Division of Epidemiology, Minnesota State Board of Health
MINNEAPOLIS

The preceding article distinguished sharply those things necessary to *escape* disease, which individuals *may* do, from those things necessary to *prevent* disease, which communities *must* do, because individuals cannot.

The present article will outline the former. As already indicated, these individual efforts may be made in three directions:

1. To secure high general physical health.
2. To secure specific immunity to specific diseases.
3. To avoid disease, especially infectious disease.

Efforts in the first direction would aim to build up and make palaces of the bodies in which we dwell and which, too often, are mere hovels; but, alas, the palace burns as easily as the hovel. It would be futile to seek the physical advancement of the race in order *to abolish disease*. We should seek the abolition of disease in order *to physically advance the race*.

True, we should not await this abolition before seeking general physical advancement, but, unfortunately, we know as yet few practicable rules of general application, except for infants, to achieve such physical advancement. Far better than how to secure high physical health we know how to avoid disease, at least, how to avoid certain diseases. A few of these are non-infectious environmental diseases, like scurvy and miner's elbow; and the non-infectious poisonings, like the poisonings from lead, arsenic, phosphorus, alcohol, and illuminating gas. These diseases depend upon readily recognized mechanical or physical surroundings. A change of diet in scurvy or of position in miner's elbow; stopping leaks in pipes for illuminating gas poisoning; refusal to admit the other poisons to the body—and all are abolished. These non-infectious poisons furnish but 1 in 1,000 of all deaths, except in infancy, where non-infectious intestinal poisonings furnish a large proportion.

On the other hand, the poisonings which are infectious, i. e., the infectious diseases, furnish more than one-sixth of all the deaths, and about one-half of these deaths are from one infectious disease, namely, consumption. Like the chemical poisonings,—lead, arsenic, etc.,—the infectious diseases depend on noxious materials that enter the body. But, unlike lead, arsenic, etc., the poisons which produce the infectious diseases are associated, not with a few well-known material *surroundings* and inanimate *things*, but with the living activities of many, often unknown, *persons*.

The little we know of how to achieve high health, and the much more we know of how to avoid disease, should be taught our 2,000,000 citizens of Minnesota. This huge task requires a mechanism so huge that only our huge public school system can accomplish it.*

Efforts in the second direction (for specific immunization) would aim to "fireproof" our bodies against disease, whether those bodies be "palaces" or "hovels." But such fireproofing can as yet be done only against smallpox and typhoid fever.**

Also, just as the general public will not fireproof literal houses against literal fire, despite large fire losses every year, so the general public will not fireproof their bodies against infection, even against smallpox. One hundred years of vaccination has left us in Minnesota with only 30 per cent of children under 16 years of age protected against smallpox. We shall be lucky if 10 years of antityphoid inoculation finds us with 10 per cent of adults protected against typhoid. In the absence of compulsory laws, rigorously enforced, immunization must remain a task of systematic education, reaching everyone, and this task also only the public school system can properly perform.

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*It is often said that practising physicians should teach health to the public. In one sense this is true. Physicians represent medicine, and medicine deals with disease, its cure, and its prevention. But practising engineers might as well be drafted to teach geometry as practising physicians to teach personal hygiene. Physicians dealing with their own patients, or even lecturing or writing on these subjects, do much good. Such work, however, is but a drop in the bucket, reaching only a fraction of the public and generally just that fraction which needs it least. There are over 2,000 practising physicians in Minnesota. They have not time, training, organization, or authority for the sort of teaching that will really reach all citizens; the public school system has all four, and 15,000 teachers to do it with.

Medicine must furnish the facts that are to be taught, but it is quite impossible that practising physicians should do the teaching.

**The immunity possible against diphtheria through protective doses of diphtheria antitoxin, is too short-lived for general continuous application to all citizens.

Efforts in the third direction would aim to shut out all poisons, including all infections from all bodies, whether these bodies be palaces or hovels, on the principle that as no dwelling, palace, or hovel can burn if fire do not reach it, so our bodies, good, bad, or indifferent, cannot be destroyed by disease if the causes of disease be shut out from them. To abolish literal fire from literal dwellings is impracticable, for fire is too useful for abolition. Disease serves no useful purpose, and its abolition is the only reasonable goal.

The exclusion of the poisons of disease, infectious or non-infectious, from the body, is the most successful preventive measure we have against most diseases that are preventable at all at present. The methods should be taught to every citizen; and for this again the public school system alone is able. Public health experts must supply the facts; it is quite impossible that they should do the teaching.*

DODGING INFECTION

Dodging infection rests on simple principles, which previous articles of this series have outlined. The one essential is to exclude from entrance to the body matter from infectious bodies; i. e., in briefest practical form, for all except the venereal diseases, to *exclude from the mouth the infected discharges of others.*

To do this requires, first, the ability to recognize infectious persons; and, second, the skill to avoid their discharges. But we cannot teach 2,000,000 people, half of them children, to recognize infectious persons. If, then, we broaden the rule and teach avoidance of discharges of all sick persons, whether infectious or not, we ignore those persons who are infectious without being sick. Hence, for the non-medical citizen, the rule must run: Exclude *all* discharges of *all* persons from *all* mouths. But this is by no means as easy as it sounds.

Mouth-discharges are exchanged in the form of mouth-spray, sputum, and smears on various things, but *chiefly by smears on hands.*

Mouth-spray consists of tiny, often microscopic, drops of liquid from the mouth, thrown out in sneezing, coughing, shouting, singing, and speaking, but not in quiet breathing. The larger ones can be seen, if watched for, and they can be felt falling upon the face in face-to-face conversations. Talk, or sing, or shout, or cough, or sneeze against a mirror two feet distant, and count the drops that strike it. Then picture to yourself what happens at "teas" and "sociables"; at meals, with lively conversation going on; at school; at church. Think also of what happens when the cooks or waiters talk while preparing food, cough while laying tables, or sneeze while wiping dishes.

This distribution of mouth-spray cannot be *prevented* unless all wear masks, as modern surgeons do when operating.

But exchange of mouth-spray may be *avoided somewhat* by avoiding close face-to-face conversations, as by sitting side by side or far apart; by coughing or sneezing always into a handkerchief, etc. Often, of course, the cough or sneeze comes too quickly or the hands are already full. It is true that the head may be turned aside; but often this spares the person in front at the expense of others, and, while coughing or sneezing into the hand itself prevents the mouth-spray from flying wide, the spray goes to the hand and the hand passes it on to the other persons later.

There is no practical method for avoiding all mouth-spray of associates, except not to have associates; but the amount of exchange may be diminished by the above precautions.

Sputum, through the spitting habit, falls upon floors, steps, sidewalks. That these deposits dry and blow about as dust is the least of the dangers, especially out of doors, for sunlight and drying kill most disease germs. Sputum follows a much more important route leading to mouths, and this route is followed, not when the sputum has become dry and dusty, but while it is still fresh and moist,—while the germs in it are still alive. This route is by way of shoes, directly into houses. There, wiped off on carpets, it awaits the creeping baby; it smears itself on the baby's fingers; and he carries it directly into his mouth. Also, in removing shoes, the owner of the shoes uses his fingers and then, too often, the owner's fingers, just like the baby's, enter the mouth unwashed. The value of antispitting ordinances thus becomes apparent.

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*Of each 1.000 school children in Minnesota schools, 450 leave school at the end of the 6th grade work, 450 leave at the end of the 8th grade. The remaining 100 enter the high school; but only 50 graduate. Ten out of the 1.000 thousand enter the University; 5 graduate. We now teach in the earlier grades theoretical anatomy and theoretical physiology, intending thus to form foundations for later practical information. Since 90 percent of children leave at the 8th grade, this 90 percent receive the theoretical information only; they never learn its practical use at all.

This system needs inversion. We should teach the practical parts of hygiene and of avoidance of disease to the 100 percent of children; i. e., not later than the 6th grade, leaving the theoretical parts for the 10 percent that take the higher courses.

The State Superintendent of Education, Mr. C. G. Schulz, authorizes the statement that he is making plans to have these subjects taught in the public schools in the manner indicated, just as soon as arrangements can be made.

But, after all, hands are the great route of exchange, and hands furnish the great route for bladder and bowel discharges, as well as for nose and mouth.*

From birth to death those universal tools, our hands, go to our mouths incessantly; from birth to death we use them for every other purpose also. Hands encounter all the discharges of the body many times a day; and if not scrupulously washed on every such occasion, they carry these discharges to everything they touch, including other hands, which go to other mouths. The very handkerchief we advocate to cough or sneeze or blow our nose into, transfers these same discharges to our fingers, the next time we use it.**

Then we shake hands with others, or feel the baby's new tooth. Visits to toilets, unless followed at once by careful hand-washing, mean similar transfer of the toilet discharges also, particularly amongst children, who, remember, form 1,000,000 of our 2,000,000 population.

The common drinking-cup and the common drinking-pail are bad because they help to exchange mouth-discharges; the roller-towel is worse, especially when used for *half-washed* hands, because then it helps to exchange *all* the bodily discharges: but the *unwashed* hands themselves are worst of all, because the discharges they carry are undiluted and fresh and moist and warm. When strangers enter a household, they add, through mouth-spray and hands, their discharges to the general household stock; and, due to this, harvesting help, threshing crews, etc., introduce infectious disease into numerous rural families and communities every year.

Within the purview of the private citizen at home, discharges are also exchanged somewhat through *things* soiled by mouth-spray and hands, as well as directly. Thus are contaminated dishes in laying the table, bread, cake, etc., also pillow-cases and sheets which are soiled by mouth or other discharges from the body. The list of the things which *may* carry such discharges, is too long for itemizing here; but, in general, such *things* do not form really very important routes of transfer, except when the discharges are considerable in quantity and while the discharges are fresh and moist. Once dried on clothing, mouth-spray, for instance, is not readily set free, and when it is dry, infection, if present, dies out with fair rapidity. Just as the main public routes of discharges from the community to the family are public water supplies, public food supplies, public milk supplies, and public outdoor flies, so the main private routes within the family, apart from mouth-spray, sputum, and hands, are private water supplies, private food supplies, private milk supplies, and private indoor flies. Public supplies may or may not bring discharges with them to the family; once they enter the family, they pretty surely receive them from the family itself. So also with the private supplies of the same things: the family well may or may not be dosed with the family discharges; the family drinking-pail or pitcher almost always is; the family cow may or may not contribute discharges to the family milk-pail, but the family milker practically always does*; and later, within the family, the family milk-pitcher receives the family mouth-spray. The family food, before and even after cooking, is subject to similar contamination. The family flies moving from the outdoor toilet, unless it be fly-proof, or from indoor spittoons or slops to food, aid in the same exchange.**

Knowing these dangers is half the battle won. Against infection of public routes,—public water supplies, public food supplies, public outdoor flies, and public milk supplies,—the private citizen should not need precautions, for these the community itself should guard. But if he need them, the private citizen has against such public routes two powerful weapons: (a) exclusion from his premises of the infected route, and (b) cooking. Foods are, of course, usually cooked, even in ordinary life; water may be boiled, milk Pasteurized, and if flies cannot be excluded, the food they contaminate can be rejected or cooked further.

The public routes of infection are not difficult for the citizen to guard against, however onerous that guarding may be: the real difficulty is with the private routes, the routes of contact that carry infection within the family and also within the school, the office, the workshop, the factory. We, individually or collectively, may abolish in time the common drinking-cup and common roller-towel, but no one can ever abolish mouth-spray or hands.*

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*Hands are also the chief route by which lead is carried to the mouth in lead-poisoning, and are an important factor in phosphorus poisoning.

**It has been suggested that the left hand should be used for handkerchiefs, thus leaving the right hand clean so far as these discharges are concerned.

*If a milker talks or sings or coughs or sneezes, using a wide mouth pail, his mouth discharges enter the milk. If he milks with unwashed hands, **all** his discharges enter the milk also.

**A curious perversity of human nature makes us attach undue importance to many possible but unimportant routes of discharges, like telephone-receivers, dirty money, the licking of postage stamps, etc., while we neglect the commonplace, really important routes, acting daily and everywhere.

An example of the same thing is seen in the great anxiety expressed concerning meat as a route of infection. It seems to be remembered but seldom that meat is almost always cooked; i. e., it almost always automatically receives the very treatment we solicitously prescribe for blocking infection through milk and through water. Meat-inspection is wholly proper, to secure good meat, and to prevent the robbing of the consumer's pocket and the consumer's stomach. But all the meat-inspection in the world could not reduce our ordinary infectious diseases by one-tenth of 1 percent. Meat, as food, especially cold meat, often carries the family discharges, but disease in, or discharges attached to, meat from its sources outside the family, are in most cases destroyed by the cooking.

It is true that by education** we may greatly affect personal conduct, but to leave the abolition of infection in ordinary life to the personal conduct of 2,000,000 people, half of them children, would be as wise as to trust the destruction of infection in a water-borne typhoid outbreak to the boiling of the water by the private citizens. All health officers know that adults in large proportion *will not,* and children *cannot,* boil the water. Moreover, the law in Minnesota now recognizes that the community has no right to supply water of such a kind that the consumer must protect himself against it. This principle should be extended, so that the community is held responsible for infection carried by any public route,—food, milk, or flies,—as well as by public water. Some day the equally logical step should follow,—the holding of the community responsible for *all* infectious diseases, by *whatever* routes they travel, including contact. The community, thanks to modern science, can abolish the sources of all infectious diseases; and once the sources are abolished, they *cannot* travel by any route, even by contact.

The simple fact is, that the private citizen in his own home can protect himself against public routes of discharges as just outlined and from the family discharges to some extent; but the moment he leaves home and enters into relations with the general public, his individual control is at an end. He cannot guard, generally he cannot even ascertain, the sources or routes of the water, milk, food, or flies he must encounter. Above all, he cannot guard the sources or routes of the discharges furnished by the persons he necessarily meets. His children go to school, compelled directly by the law to do so, and there they share discharges which no personal defense through conduct can wholly avoid. He goes himself to work, compelled indirectly by the law to do so, and there he shares discharges which he can little or not at all control. Only the community can exclude infection from the public routes of discharges, water, milk, food, and flies; but also only the community can exclude infection from the private routes of discharges grouped under "contact."

Of course, the exchange of discharges already outlined, however inevitable, is harmless unless and until infected discharges enter into the exchange. The chances of encountering infected discharges in Minnesota can be guessed somewhat from the other guess that daily there goes at large, unknown, about one infective person in each 500 of the population. Hence, he who would defend himself from infection by his habitual personal conduct toward his associates must avoid the harmless discharges of 499 uninfected persons in order to avoid the harmful discharges of one unknown infected person. (This estimate is necessarily a guess, and it does not include the venereal infections.)

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*Two million mouths, served by 4,000,000 hands, receive 6,000,000 meals in Minnesota daily. But this is not as important as are the hands that handle the meals in preparation; moreover, hands go to mouths far more often between meals than during them.

**The following rules prepared for use in the public schools at the request of County Superintendent Geo. S. Selke, Benton County, indicate the main points to be taught concerning protection from infectious diseases in the schools. They indicate also pretty closely what can be done in the home and for this reason they are inserted here.

The germs of infectious diseases are in the discharges of infectious persons. Infectious diseases are "caught" from infectious persons simply by taking into the mouth some portion, usually very small, of their infected discharges.

The Great Rules of Prevention in Schools.

1. Exclude from school all infectious persons, thus excluding all infectious discharges.

2. Since infectious persons may enter school at times despite the greatest vigilance, restrict, so far as possible, the scattering of any discharge of any person at any time in school. (This will also train the children to restrict their discharges out of school and in after-life).

a. Mouth discharges are transferred directly to and taken directly from drinking-cups, towels, pencils, chewing-gum, whistles, etc. Mouth, nose, bladder, and bowel discharges are transferred directly to hands many times daily. Hands go to mouths many times daily; therefore—

Provide individual drinking-cups, individual towels, individual pencils, individual modeling-clay, individual modeling-sand, etc. There should be a sign in every school, "Wash your hands after every visit to a toilet."

b. Sputum (spit) or other discharges, deposited on floors, sidewalks, etc., are picked up by shoes and so carried into homes. When handling shoes (putting on, taking off, etc.), discharges are transferred to hands, which go to mouths, or touch things that go to mouths. Therefore—

Avoid depositing discharges,—sputum, etc.,—on floors, sidewalks, or elsewhere where other people may step on them.

c. Mouth-spray is thrown out in talking, singing, coughing, sneezing, etc., therefore—

Avoid throwing mouth-spray into other people's faces by avoiding close face-to-face conversations, face-to-face recitations, face-to-face singing-exercises, etc. Cough, sneeze, etc., into a handkerchief always.

d. The air of a schoolroom in use necessarily receives mouth-spray into it in talking, reciting, etc.

e. Bladder and bowel discharges are carried by flies when flies can get at them. During early autumn and late spring or summer sessions, flies may carry these discharges from toilets to children's lunches, etc., therefore—

Make toilet-vaults fly-proof. Provide springs or weights to automatically close toilet-doors, and fly-screens for toilet-windows.

f. Three things destroy comfort and success in school work: Temperature too high; atmosphere too dry; air not in motion. Also, no child can work well in a poorly lighted room; but do not imagine that good lighting, good heating, and good ventilation will prevent spread of infection if infectious persons gain entrance. No school is a sanitary school if the children exchange their discharges without restriction; but only those schools where infectious persons are watched for and excluded are safe schools., therefore—

Note daily the general state of health of each child. No child who shows any decided change from the usual for that child, especially fever, headache, sore throat, stomach-ache, or general dumpishness, should attend school until seen by a physician. This rule permits early detection of infectious children. It also excludes children who should be excluded for their own good, even if non-infectious.

g. Children showing defective vision, hearing, breathing, etc., should be referred to the principal, superintendent, or school board for action.

The great weakness of the personal defense through conduct is this: The precise moment when it is most needed is the precise moment that it generally fails. In the first place, the mouth-spray of the ordinary well person is not half so abundant or so widely scattered as that of the case of tuberculosis, of measles, of whooping-cough, or of influenza, for these are just the diseases in which coughing and sneezing are prominent symptoms. The bowel-discharges of the ordinary well person are not half as likely to be disseminated as those of the typhoid or dysentery case, for these are just the diseases in which frequent, abundant liquid stools, often involuntary, occur. Again, the discharges of the sick must often be handled by associates unused to performing such services for others. Finally, exactly as green troops forget under fire all their parade-ground drill, trip over their own feet, and fire into the ground or at the sun, so the citizen, however carefully he may have practiced a well-thought-out system of avoiding discharges in ordinary life, goes all to pieces in the flurry when his child develops, say, scarlet fever. Of course, it is true that green troops soon recover their parade-ground drill, even in the face of the enemy; but they cannot do what seasoned troops can do, and the non-medical citizen can seldom protect himself in the face of infection as do the trained contagious-disease nurse, the physician, and the epidemiologist. Nevertheless, if he has previously known, and practiced even crudely, the necessary precautions,* he is in a much better position to defend himself.

SUMMARY

The whole subject of public health divides itself into—

1. Securing high physical development and efficiency.
2. Avoiding disease.

Of the former we know little of practical application to the general population except in infancy.

Of the latter we know much of cure, but little of prevention, except in the environmental diseases, in the poisonings, as from lead, arsenic, alcohol, etc., and especially in the infectious diseases.

Defense against environmental diseases and the non-infectious poisonings is largely a matter of trade conditions and of avoiding dangerous, but known, non-living things and therefore largely of legislation, inspection, and conduct. Against infectious diseases, the sources being infected persons, defense is essentially a matter of precautions against those persons. The prime difficulty is the recognition of those persons. If they are not recognized, the defense becomes a matter of guarding against *all* persons.

Defense against infection may be divided into individual and community defense.

Infectious diseases are carried by four main public routes—water, food, flies, and milk, and by a fifth private route, contact. By cooking *all* alimentary supplies before eating them, the public routes may be guarded at the consumer's end, but public opinion and, concerning water supplies, the law rightly demand the transfer of this burden of protection to the producer.

The private routes of contact can be guarded by the individual also, but only by a ritual so elaborate and aimed at so general a target that it does not adequately meet the ordinary conditions of the ordinary life of the ordinary citizen, especially of hard-working fathers, hard-driven mothers and young children. Contagious-disease experts, with long, patient training and when dealing with known infected individuals, generally succeed; the ordinary untrained citizen must very often fail.

Notwithstanding that the community can and should assume the prevention of contact-infection (by excluding infection from the community entirely), as well as the care of the four public routes, the methods of personal defense should be well known to all; and there exists no means of teaching them comparable at all with the great public school system, for that, and that alone, reaches the citizens personally and in details. There, in simple language, all that is useful can be readily taught, and it must be taught in the sixth grade, or earlier, to reach the population as a whole.

(The three measures for Community Control will be discussed in the next article.)

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*It is a fatal fallacy to believe in "general cleanliness" as a defense against infection. It is not the "general cleanliness" of surroundings that prevents infectious diseases; it is the **"specific** cleanliness" of freedom from infected discharges. Scrubbed floors, bright pans, neatness, and order do not necessarily involve, usually do not imply, hands free of discharges; they cannot stop mouth-spray. A gorgeous uniform no more shows ability to shoot than does "general cleanliness" show ability to avoid infection. It is not visible dirt that hurts,—mud, ashes, coal-dust,—but the usually invisible discharges in mouth-spray and on hands, and even these only when laden with infection.

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THE AMERICAN MEDICAL ASSOCIATION AT MINNEAPOLIS

Minneapolis feels honored that the American Medical Association has chosen this city for its annual meeting in June, 1913. The struggle between Louisville and Minneapolis was a sharp one, but apparently the Minnesota organization, aided by the Dakotas, was better than that of Kentucky. Then, too, the men who carried the movement to success, knew what was needed, and knew the details which were necessary for the care of such a large organization.

In some respects, the Atlantic City meeting this year was not up to standard, and the men of the West will doubtless make a very strong effort to have a successful meeting. Some of the important arguments and factors which will draw a large attendance, are that the meeting will occur after the close of all the medical schools, and that many men from the East will take advantage of their opportunity to go to the Yellowstone and cross the Canadian Rockies by the Canadian Pacific and Grand Trunk roads. Then, too, the reputation Minnesota has for beauty of climate, and for streams and lakes full of fish and other means of sport, will add materially to the success and attendance at the meeting in Minneapolis.

The members of the committee are very thankful to the members from St. Paul and from North and South Dakota, who joined in the invitation and who made it possible for the Houses of Delegates to select Minneapolis.

The work of the committee will probably be organized at a very early date. The machinery is huge and requires a good deal of time to accomplish its work. Doubtless many men will respond to the call, and will cheerfully take up the duties in the large and the small committees. The work of financing the entertainment is a very serious one, and THE JOURNAL-LANCET respectfully asks that every physician will put aside a definite sum of money to be devoted to the entertainment of the physician guests from all over the United States.

Undoubtedly the attendance will be much greater here than it was at Los Angeles, as that city is so far removed from the East, the Middle East, and the Middle West, while Minneapolis is about the center of things. If we can induce the men from the East, South and other sections to come here, we can show them not only a vigorous and active city, but a productive and vigorous state. It will also give us an opportunity to demonstrate to medical men elsewhere that Minnesota is alive and advanced in its methods in medicine, and that we have adequate state laws to govern the admission and practice of physicians in the state, laws that equal or excel those of any other state in the Union.

THE PHYSICIAN AND HIS INCOME

It is always interesting and sometimes instructive to hear the discussions of medical men and laymen on the incomes of medical men. At various times a medical journal or a medical statistician has endeavored to figure the supposed and actual receipts of doctors, but so far no reliable data have been obtained. The average medical practitioner feels that this is his own private business and not a subject for publication. If the truth were known the net income of physicians would be found lower than one supposes. A medical man may be very busy and may put a good deal of business on his books, but the actual collections would not approach the income booked.

The man in other lines of business uses a different method from that of the professional man. The former counts his cash and then figures his expenses, which include interest on investment, wear and tear of plant, and the cost of handling goods, together with salaries of employees. The doctor, on the other hand, puts a fee on an operation or a diagnosis or a visit, adds all up, and calculates that his income is the sum total. In order to be fair to himself, he must see that all, or as many of his bills as are collectible, together with cash earnings make up his income each month. He should then deduct from this amount his necessary expenses that are inevitable in the course of the month for the conduct of his business. His actual income is then in sight. In the large cities a few men do a comparatively large business, and their expenses are correspondingly large. A few men do a moderately good business with a moderate expenditure. But the large majority of doctors do a small business, and their expenses and collections are correspondingly reduced. The agents of medical-book publishing houses, representatives of drug houses, etc., are in a position to estimate the work and income of the average doctor, and their report is that the majority of doctors make a bare living.

The income of the high-priced clerk or the salaried man in the commercial world, is about on a level with the income of the general practitioner. The commercial man is perhaps a little better off, as his salary is uniform and continuous, while the monthly earnings of the medical man vary with the tide of sickness. It is not uncommon to hear that business is very poor, that few people are sick, and that collections are unusually slow; and men who have been in practice for three or four years or more sometimes do not take in enough money to meet their expenses. In the country districts conditions are much better, as a rule, provided the medical man is reasonably skillful and intelligent. Although the income of the country physician varies it is more certain than that of the city man, who depends upon a moving population. Living in the country is less expensive, and there are fewer cash demands made on the country doctor. The work is hard and the hours are long, but the man in the country covers a large field, and, if he values his services properly, he gets a fairly just remuneration for his work.

The incomes of many medical men in the cities are usually grossly overrated, and not infrequently the doctor permits this false impression to gain in magnitude because it tickles his pride.

Occasionally, a medical man has the business sense well developed. He is frugal and saving, careful in his investments, and ultimately secures an independent income. He is the man who carries on his work on business principles and pays his bills promptly, as every business man should.

Once in a while a single solitary doctor becomes independently rich, as that term applies to a doctor. Usually, however, he has been carefully advised in his investments or marries a woman with money. The very few spoken of above who have a large business, work very hard for what they get, and their names can be tagged on the fingers of two hands. Unfortunately, many doctors, like the luckless unbusiness-like men, strive to get rich quickly, and as a result of their efforts they are courteously permitted to retain mining and oil stocks, undeveloped industrial securities (or unsecurities), and their earnings go glimmering. They become like gamblers. Their interest in medicine fades away, and their business goes to someone else who is on the up-grade.

The Delaware State Medical Journal recently attempted to secure a census of the incomes of 200 physicians in that state, and the replies from 34 were tabulated. Thirteen of these replies came from Wilmington, a city of about 90,000. Of these thirteen the time of practice in that city was from fifteen months to thirty years, and the total value of their practices ran from $2,000 to $9,000, and the amount actually collected ranged from $1,100 to $8,500. Their fees were from 50 cents to $2.00 for an office visit, and from $1.00 to $2.00 for a house visit. Confinement fees were from $10.00 to $25.00, and their gratuitous work was estimated from $400 to $3,900 a year. Their expenditures for drugs, instruments, office supplies, books, and conveyances were from $600 to $2,000, leaving a net income varying from $700 to $6,000. This does not take into account office rent and its incidental expenses.

The men in the rural districts did rather better, but no man who reported collected more than $3,500. Practice in the East, particularly in the older states, compared with practice in the western states, shows a lower amount of business and lower fees and collections. It is therefore difficult to get at the actual collected income of the average physician, because it is as varied as is the business of various towns and cities and their relative commercial importance.

The man who actually has an income of from $20,000 to $40,000 a year in a large city like Minneapolis or St. Paul is a *rara avis,* and the man who collects $10,000 a year is doing well. A $5,000 income is earned and collected by comparatively few. It requires an enormous expenditure of energy or the fees charged must be very large, in order to class one among those who have larger incomes.

No man in medicine gets more than the king who said that all he had was his board and clothes, and if we all succeed in reaching that high point and incidentally help our suffering sick gratuitously, we are doing the largest part of our duty.

NEWS ITEMS

A new hospital, called Trinity, has been opened in Missoula, Mont.

Dr. R. J. Morrisey has moved from Albee, S. D., to Watertown, S. D.

Dr. J. S. Kilbride, of Canby, has returned from a year's work in Europe.

Dr. C. O. Robinson, recently of Omaha, Neb., has located at Stanford, Mont.

Dr. Campbell Sansing has moved from Courtenay, N. D., to Lewiston, Idaho.

Dr. C. H. Mayo, of Rochester, has gone to Europe for a short visit to the hospitals.

Dr. T. O. Sandbo, of Lemmon, S. D., is in Chicago doing post-graduate work at Rush.

The General Hospital of Devils Lake, N. D., graduated three nurses from its training-school last month.

Mrs. Dr. S. M. Hoff was elected president of the Ladies' Auxiliary at its annual meet at Mitchell last month.

Dr. F. P. Rasmusson, of Kathryn, N. D., has purchased the practice of Dr. C. Sansing, of Courtenay, N. D.

Dr. Fred C. Westerman, of Montgomery, was married last month to Miss Edna M. Ogg, of Orange City, Iowa.

The new $40,000 hospital building for the Kalispel General Hospital, of Kalispel, Montana, was dedicated last month.

Dr. W. L. Palmer, of Albert Lea, has returned from a long trip to the coast cities for his health. He comes back much improved.

Dr. E. F. St. Dennis, of Ghent, died last week at the age of 40. Dr. St. Dennis was a graduate of Laval, and had practiced six years at Ghent.

During the recent Conference of the Methodist Church, held in Minneapolis during the month of May, forty-one hospitals of the church were represented.

Dr. W. F. Dimmitt, who has practiced nearly twenty years in Red Wing, has moved to Yoakum, Tex. The Red Wing physicians gave Dr. Dimmitt a farewell banquet.

The hospital at Hamilton, Montana, has received generous subscriptions from the citizens of that place, and will hereafter operate quite free of financial restrictions.

The North Dakota Homeopathic Association met in Fargo on June 6th and 7th. Drs. H. C. Aldrich and H. D. Newkirk, of Minneapolis, read papers before the Association.

Dr. E. N. Buckley, of St. Paul, has been informed that the degree of A. M. will be conferred upon him this month by Holy Cross College, his alma mater, of Worcester, Mass.

Dr. H. W. Hill, of the Minnesota State Board of Health, is one of five men recommended by the Suffolk (Boston) County Medical Society to the mayor of Boston for director of the Boston Board of Health.

Two special cars provided for Northwestern physicians over the Milwaukee and Pennsylvania Lines to the A. M. A. meeting were well filled. Report reaches us from the party at Chicago that the treatment of the party by the Milwaukee Line officials was superb.

Drs. Mayo (W. J.), Graham, and Balfour, of the Mayo Clinic, have returned from their trip through Germany; and our readers may soon expect another of Dr. Mayo's delightful and instructive series on European hospitals which he has contributed to The Journal-Lancet.

The action of Judge Waite, of the Minneapolis Juvenile Court, in calling to his assistance in the study of delinquent children, a trained psychologist, Prof. J. B. Miner, of the State University, and a physician, Dr. H. D. Newkirk, of this city, has attracted wide attention, and deservedly so.

Gov. Burke of North Dakota has appointed the following delegates to the International Congress on Hygiene and Demography, to meet in Washington, D. C., in September: Dr. E. P. Quain, Bismarck; Dr. E. N. Darrow, Fargo; Dr. James Grassick, Grand Forks; and Dr. B. D. Verret, Rolla.

Dr. C. H. Hunter, of Minneapolis, has been dropped from the Hennepin County Medical Society and also from the medical faculty of the

(Continued on page 334)

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF MINNESOTA FOR THE MONTH OF MARCH, 1912

REPORTED FROM 82 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES.	Population U. S. Census of 190	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia
Ada	1,253	1,432	1													
Albert Lea	4,500	6,192	11	2		1								1	1	
Alexandria	2,681	3,001	6	1												
Anoka	3,769	3,972	5			1										
Austin	5,474	6,960	23	1		2		2								2
Barnesville	1,326	1,353	0													
Bemidji	2,183	5.099	4	1		1										
Benson	1,525	1,677	2													1
Blue Earth	2,900	2,319	2				1									
Brainerd	7,524	8,526	6										1			
Breckenridge	1,282	1,840	3													
Canby	1,100	1,528	2													
Cannon Falls	1,239	1,385	3	1												
Chaska	2,165	2,050	1													
Chatfield	1,426	1,226	2													
Cloquet	3,074	7,031	6	1		2					1			2		
Crookston	5,359	7,559	8	1							1					
Detroit	2,060	2,807	2													
Duluth	52,968	78,466	68	13	3	10							2	5	5	1
East Grand Forks	2,077	2,533	1								1					
Ely	3,572	3,572	4													1
Eveleth	2,752	7,036	11	1			1									
Faribault	7,868	9,001	8	2												
Fairmont	3,440	2,958	0													
Fergus Falls	6,072	6,887	14	2		2									2	
Glencoe	1,788	1,788	1													
Granite Falls	1,454	1,454	1													
Hastings	3,811	3,983	6												1	
Hutchinson	2,495	2,368	2													
International Falls		1,487	5			1										
Jordan	1,270	1,151	0													
Lake City	3,142	3,142	6	1		2										
Le Sueur	1,937	1,755	0													
Litchfield	2,280	2,333	3					1								
Little Falls	5,774	6,078	5											1		
Luverne	2,223	2,540	4			3									1	
Madison	1,336	1,811	3													
Mankato	10,559	10,365	20		1	1					1			1		
Marshall	2,088	2,152	4													1
Melrose	2,591	2,591	4											1		
Minneapolis	202,718	301,408	272	33	9	30	2	2	1		1	1	1	4	15	1
Montgomery	979	1,267	*													
Montevideo	2,146	3.056	1													
Moorhead	3,730	4,840	8			1									1	1
Morris	1,934	1,685	4	1		1										
New Prague	1,228	1,554	0													
New Ulm	5,403	5,648	7	1											1	
Northfield	3,210	3,215	3		1	1										
Ortonville	1,247	1,774	4	1		1										
Owatonna	5,561	5,658	8												2	
Pipestone	2,536	2,475	2			1										
Red Lake Falls	1,666	1,666	1													
Red Wing	7,525	9.048	12	1		2									2	
Redwood Falls	1,661	1,666	1													
Renville	1,075	1,182	0													
Rochester	6,843	7,844	31	2											7	
Rushford	1,100	1,011	1													
St. Charles	1,304	1,159	1													
St. Cloud	8,663	10,600	8			3										
St. James	2,102	2,102	3					2								
St. Paul	163,632	214.744	216	25	4	25	1	2			1		2	6	16	3
St. Peter	4,302	4,176	4												1	
Sauk Centre	2,154	2,154	1													
Shakopee	2,046	2,302	2	1		1										
Sleepy Eye	2,046	2,247	3					1							1	
South St. Paul	2,322	4,510	3											1		
Staples	1,504	2,558	3	1			1									
Stillwater	12,318	10,198	13			2	1									
Thief River Falls	1,819	3,174	1													
Tower	1,111	1,111	0													
Tracy	1,911	1,826	5	1		1										
Two Harbors	3,278	4,990	17	1									5	2	1	
Virginia	2,962	10,473	9			2								1	1	
Wabasha	2,622	2,622	*													
Warren	1,276	1,613	3	1	1											
Waseca	3,103	3,054	5		1						1					
Waterville	1,260	1,273	*													
West St. Paul	1,830	2,660	0													
Willmar	3,409	4,135	5												1	
Winona	19,714	18,583	25	4		3									2	
Winthrop	813	1,043	1								1					
Worthington	2.386	2.385	2												2	

REPORTED FROM 54 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia
Adrian	1,258	1,112	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Aitkin	1,719	1,638	3	1	....	1	....	....	....	....	....	....	....	....	....	....
Akeley			2	1	....	....	....	....	....	....	....	....	....	....	....	....
Appleton	1,184	1,221	1	....	....	1	....	....	....	....	....	....	....	....	....	
Belle Plaine	1,121	1,204	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Biwabik		1,690	6	....	1	....	....	....	....	....	....	....	....	1	....	....
Bovey		1,377	0	....	....	....	....	....	....	....	....	....	....	....	....	....
Browns Valley	721	1,058	4	....	....	....	....	....	....	....	....	....	....	....	....	....
Buffalo	1,040	1,227	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Caledonia	1,175	1,372	3	....	....	....	....	....	....	....	....	....	....	....	....	....
Cass Lake	546	2,011	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Chisholm		7,684	10	....	....	2	....	....	....	....	....	....	....	1	1	....
Coleraine		1,613	0	....	....	....	....	....	....	....	....	....	....	....	....	....
Dawson	962	1,318	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Delano	967	1,031	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Farmington	733	1,024	0	....	....	....	....	....	....	....	....	....	....	....	....	....
Fosston	864	1,055	*	....	....	....	....	....	....	....	....	....	....	....	....	....
Frazee	1,000	1,645	3	1	....	1	....	....	....	....	....	....	....	....	....	....
Glenwood	1,116	2,161	1	....	....	....	....	....	....	....	....	....	1	....	....	....
Grand Rapids	1,428	2,239	6	....	....	1	....	....	....	....	....	....	....	....	....	....
Hibbing	2,481	8,832	7	1	....	....	....	....	....	....	....	....	....	....	....	....
Jackson	1,756	1,907	4	....	....	1	....	....	....	....	....	....	....	1	....	....
Janesville	1,254	1,173	3	....	....	1	....	....	....	....	....	....	....	....	....	....
Kenyon	1,202	1,237	0	....	....	....	....	....	....	....	....	....	....	....	....	....
Lake Crystal	1,215	1,038	2	....	....	1	....	....	....	....	....	....	....	....	....	....
Long Prairie	1,385	1,250	0	....	....	....	....	....	....	....	....	....	....	....	....	....
Madelia	1,272	1,273	0	....	....	....	....	....	....	....	....	....	....	....	....	....
Milaca	1,204	1,102	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Mountain Lake	959	1,081	1	....	....	....	....	....	1	....	....	....	....	....	....	....
Nashwauk		2,080	2	....	....	1	....	....	....	....	....	....	....	....	....	....
North Mankato	939	1,279	2	....	....	....	....	....	....	....	....	....	....	....	....	....
North St. Paul	1,110	1,404	0	....	....	....	....	....	....	....	....	....	....	....	....	....
Osakis	917	1,013	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Park Rapids	1,313	1,850	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Pelican Rapids	1,033	1,019	1	1	....	....	....	....	....	....	....	....	....	....	....	....
Perham	1,182	1,376	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Pine City	993	1,258	2	....	....	....	....	....	1	....	....	....	....	....	....	....
Plainview	1,038	1,175	4	1	....	1	....	....	....	....	....	....	....	....	....	....
Preston	1,278	1,193	0	....	....	....	....	....	....	....	....	....	....	....	....	....
Princeton	1,319	1,555	1	....	....	....	....	....	....	....	....	....	....	....	1	....
St. Louis Park	1,325	1,743	0	....	....	....	....	....	....	....	....	....	....	....	....	....
Sandstone	1,189	1,818	5	2	....	....	....	....	....	....	....	....	....	1	....	....
Sauk Rapids	1,391	1,745	2	....	....	1	....	....	....	....	....	....	....	....	....	....
South Stillwater	1,422	1,343	0	....	....	....	....	....	....	....	....	....	....	....	....	....
Springfield	1,511	1,482	2	1	....	....	....	....	....	....	....	....	....	....	....	....
Spring Valley	1,770	1,817	1	....	....	....	1	....	....	....	....	....	....	....	....	....
Wadena	1,520	1,820	2	....	....	....	....	....	....	....	....	....	....	....	....	....
Wells	2,017	1,755	*	....	....	....	....	....	....	....	....	....	....	....	....	....
West Minneapolis	2,250	3,022	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Wheaton	1,132	1,300	0	....	....	....	....	....	....	....	....	....	....	....	....	....
White Bear Lake	1,288	1,505	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Windom	1,944	1,749	2	1	....	....	....	....	....	....	....	....	....	....	....	1
Winnebago City	1,816	2,555	1	....	....	....	....	....	....	....	....	....	1	....	....	....
Zumbrota	1,119	1,138	1	....	....	....	....	....	....	....	....	....	....	....	....	....
STATE INSTITUTIONS																
Fergus Falls, Hospital for Insane			10	2	....	2	....	....	....	....	....	....	1	....	....	....
Rochester, Hospital for Insane			12	1	....	....	....	....	....	....	....	....	....	....	....	....
St. Peter, Hospital for Insane			7	2	....	....	....	....	....	....	....	....	....	....	....	....
Anoka, Asylum			3	2	....	....	....	....	....	....	....	....	....	....	....	....
Hastings, Asylum			1	....	....	....	....	....	....	....	....	....	....	....	....	....
Faribault, School for Deaf			....	....	....	....	....	....	....	....	....	....	....	....	....	....
Faribault, School for Blind			....	....	....	....	....	....	....	....	....	....	....	....	....	....
Faribault, School for Feeble Minded			5	4	....	1	....	....	....	....	....	....	....	....	....	....
Owatonna, School for Dependents			....	....	....	....	....	....	....	....	....	....	....	....	....	....
Stillwater, State Prison			....	....	....	....	....	....	....	....	....	....	....	....	....	....
St. Cloud, State Reformatory			....	....	....	....	....	....	....	....	....	....	....	....	....	....
Red Wing, State Training School			....	....	....	....	....	....	....	....	....	....	....	....	....	....
Minneapolis, Soldiers' Home			4	....	....	1	....	....	....	....	....	....	....	....	....	....
OTHER PARTS OF STATE			761	72	12	113	3	6	1		7	2	3	31	58	5
Total for state			1841	193	33	229	11	16	4	0	15	3	17	61	123	17

*No report received. **Registrar** not doing his duty.

134 stillbirths not included in above totals.

Children and Coffee.

The practice of giving coffee and tea to children is a pernicious one that doubtless has much to do, in an etiological way, with many obscure but tangible disturbances in the young, growing nervous system.

The Doctor who recognizes and appreciates this fact sufficiently to take it into full consideration in the treatment of his juvenile patients is certain of a larger degree of success as the "Children's Doctor."

It is not difficult to wean children away from the *caffeine*-beverages if they are given

POSTUM

with cream (or hot milk) and sugar to taste.

Postum is made of clean, hard wheat, including the bran-coat with its natural content of the valuable "wheat phosphates" --an essential salt in cell elaboration.

When properly prepared, **postum** is not only wholesome and, in a degree, nutritious, but is really a delightful beverage. Children may safely drink all they want. In this way, when recommended by the family doctor, **postum** becomes a helping friend to both doctor and patient.

The *Clinical Record* for Physician's bedside use will be sent, prepaid, to any Physician or Nurse who has not already received one. Also a box of samples of *Postum, Grape-Nuts* and *Post Toasties.*

Postum Cereal Co., Ltd., Battle Creek, Mich., U. S. A.

NEWS ITEMS

(Continued from page 330.)

State University because he failed to defend himself against the charges of performing a criminal operation which were made by a paper published anonymously in Bismarck, N. D.

The newspapers of Minnesota have given wide publicity to the difference between the Attorney-General of Minnesota and the State Board of Medical Examiners. Dr. Fullerton, the ex-Secretary of the Board, makes a vigorous reply to the Attorney-General, and it is to be hoped that he is in the right, legally, in the matter.

The Minnesota State Board of Medical Examiners is meeting criticism because it recently refused to grant a license to a Wisconsin physician who passed the examination satisfactorily. The license was withheld because this physician advertised that he could cure cancer, and not because he advertised himself as "a specialist in the cure of cancer," as a St. Paul daily puts it. The case was carried to the district court, and was decided in favor of the Board.

The American Medical Association will meet in Minneapolis next year. New York, Louisville, and Minneapolis were the competing cities for the honor, and Minneapolis won. Great credit for this result is due to the Minneapolis committee, of which Dr. Frank C. Todd is chairman. Drs. Geo. D. Head and W. H. Condit were the other members of the committee. The St. Paul physicians and hotels have promised their hearty cooperation in the entertainment of the visitors.

Rochester, Minnesota, is about to try an interesting experiment in its health department. Dr. C. H. Mayo is the health commissioner of the city, and he is to have an assistant, with a salary of $3,000, who will devote his entire time to the work. The State Board of Health pays one-third of this, the city pays one-third, and the Civic League of the city pays a third. The experiment is designed to show the value of expert health officials, and to induce the legislature of the State to extend financial aid to every city and village that will employ an expert.

PRACTICE FOR SALE

Practice, $2,000.00 and upward, driving rig, and office furniture in beautiful village of over 1,000 twenty-five miles from Minneapolis. Price, $500 cash. Address K. D., care of this office.

PHYSICIAN WANTED

Wanted at once, Catholic physician for Minnesota town, established practice, nothing to buy, office equipped. Must be able to do some surgery; must have had a good interneship; must be of good appearance and must be a good mixer. Prefer young unmarried man. P. M.

PRACTICE FOR SALE

A $4,000 to $5,000 cash practice in a North Dakota town of 1,600 people, 40 miles from Fargo, is for sale, with office furniture and *x*-ray outfit, at a reasonable price if taken at once. Rich Scandinavian and German community. Address O. E., care of this office.

PRACTICE FOR SALE

A well-established $3,500 practice in a fine Minnesota town is offered for the price of office furniture. Automobile and residence optional. County-seat, 4,000 population; railway division, hospital, large territory, good roads, good pay. Must have cash and good recommendations. Address R. M., care of this office.

PRACTICE FOR SALE

My practice, office furniture, buggy, cutter and team of horses. Practice averages from $4,000 to $4,500 a year. Location in southern Minnesota, about 100 miles from the Twin Cities. Can be purchased reasonably. Address W. B., care of this office.

PUBLISHER'S DEPARTMENT

THE POTTENGER SANATORIUM

We again call attention to the above institution, which is so beautifully located in the foothills near Los Angeles, surrounded by orange groves and mountain scenery.

Its medical director, Dr. F. M. Pottenger, has a high reputation, both in this country and abroad, in the treatment of lung and throat diseases.

A number of Northwestern physicians have sent patients to his sanatorium, and both patients and physicians have been well pleased with the institution and its conductors.

FISHING AND OUTING

The Northwestern Line issues a special folder, entitled as above, which gives an account of more nearby delightful outing grounds than can be found on any other railroad in the Northwest. The lakes and streams of Wisconsin furnish all kinds of fresh-water game fish, and probably very few of our readers know how many ideal summer and outing resorts can be found within from 50 to 150 miles of the Twin Cities, and most of these places are on the Northwestern Line.

The passenger department of the Line has done well to get out this very complete and reliable folder; and every physician should have a copy of it, both for his own use and for the guidance of his patients.

NEPHRITIN

Messrs. Reed & Carnrick have issued a booklet on Nephritin which deals with the various kidney conditions calling for the administration of this preparation.

The booklet contains a dozen colored plates giving the exact microscopic appearance of the urine in each condition described, and this, of course, adds much to the value of the text.

Nephritin is a standard preparation, and is made by a house of the highest ethical standing.

VAN HORN CATGUT

In current surgical literature one notices more references to "Van Horn" catgut than to all other makes combined. In fact, the results obtained with this product have become so remarkable that the surgeon who is describing an operation in which the action of the suture is an important matter, almost always refers to the "Van Horn" product.

The above facts, which any reader can readily verify, shows what results care and skill can obtain, and how quickly a new product will be recognized by the profession when that product meets the needs of the profession better than any other.

This firm also make a lubricating jelly that is, in excellence, no whit behind their catgut. This jelly has very important uses besides that of a lubricant for catheters, tubes, etc. The firm, of course, will be glad to furnish our readers any information desired.

HIGH-GRADE SURGICAL INSTRUMENTS AND HOSPITAL SUPPLIES

Messrs. Sharp & Smith, 103 N. Wabash Ave., Chicago, are manufacturers and importers of a general line of surgical instruments and hospital supplies, but they also manufacture a great many special instruments and appliances with which every surgeon and physician should be acquainted. The house is an old one, and its reputation is of the highest; and all that they put out may be depended upon as the best that skill and care and honesty of purpose can make their product.

Their announcements in our advertising columns are always interesting and are well worth following. However, correspondence direct with the house is much a better way to obtain what one wants.

BAD EFFECTS OF TEA AND COFFEE

Children should not be allowed to drink tea or coffee on account of the disturbing action on the nerves and heart, of the alkaloid, caffeine.

Physicians well know this, but parents either do not, or are neglectful of their children's best interests in this regard.

Postum, the well-known food beverage, contains no coffee—only the wholesome elements of clean, hard wheat, roasted, and a small per cent of pure molasses. Children may drink freely of Postum, which, with good cream, affords them an agreeable, warm drink, devoid of harmfulness, but on the other hand healthful and nourishing.

Let the children have all they want of Postum while their young bodies are growing and their nervous systems are getting "settled."

OAK LEIGH, A PRIVATE EDUCATIONAL SANITARIUM

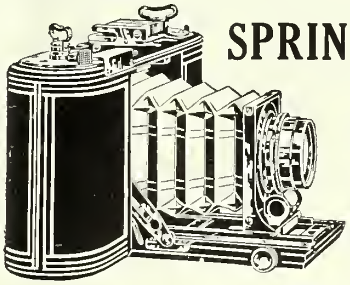
The above sanitarium is, in many respects, a unique one. It is situated on the shore of Lake Geneva, Wis., and occupies three buildings situated in a 14-acre tract of wooded land.

The work of the institution is the cure of defective mentality, in both children and adults, but as such defects are generally congenital, the best results are obtained when the work is begun early. Out-of-door life and sleeping are the main factors in building and keeping up the body-tone. In addition to this comes the educational work of the institution, which is done along recognized scientific lines, no small amount of the work being original with this institution, which is a pioneer in that line of work.

Dr. Mary E. Pogue is the physician in charge and the staff of teachers has been obtained from the best colleges and universities in the country.

The results obtained by the institution are very remarkable. Children who cannot do their work at all in school are soon made able to keep up such work with ease; and other children who are very noticeably defective soon attain a normal condition of both body and mind. Some work is done with adults, but, in the main, the institution deals with children and youths.

Our readers cannot fail to be interested in such a work, and we think it would be interesting for any of them who may be dealing with such cases to correspond with this sanitarium.



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We carry a complete line, $1. up.

Developing, printing, enlarging.

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THE SURGICAL TREATMENT OF DIVERTICULA OF THE URINARY BLADDER

WITH THE REPORT OF A CASE AND A NEW DEVICE FOR FACILITATING THE OPERATION*

By Wm. Lerche, M. D.
ST. PAUL

The presence of a diverticulum of the bladder, when so situated that stagnation of its content is favored, is a constant source of danger to the patient if it becomes inflamed. In cases of diverticulitis collected by English the mortality was 83.1 per cent.

Of the various methods of treatment for this condition, the radical removal of the sac by excision has given the best results.

The reports of 14 cases thus operated upon can be found in literature, namely, that of Alexander (1884), Czerny (1897), Riedel (1903), Pagenstecher, Young (3 cases), Wulf, von Eiselberg (1904), Porter (1907), von Eberts (1909), Kroiss, Zaaijer, Brongersma (1911). To this number I wish to add the report of a case that has come under my own observation.

CASE

Male, aged 38, had measles, whooping-cough, and chicken-pox in childhood. At the age of 28 the patient experienced two attacks of severe pain in the left abdomen and one attack in the corresponding part of the right side in the course of a year. These attacks were diagnosed as renal colic. He passed no blood in the urine, nor did he pass any calculi. At the age of 31 he had an attack of urethritis, which healed in three weeks. Nine months later he had an attack of gonorrhea which lasted for fifteen months, but finally healed completely. Four years previous to consultation, the patient noticed thick whitish material in the urine at intervals of a few weeks. Occasionally he had spasm of the sphincter vesicæ and could not quite finish urination. He suffered no pain or any other inconvenience. Now and then he noticed that on urinating in the morning he could pass urine again shortly afterwards. During the last two years the whitish material in the urine has appeared at shorter intervals and has been more abundant, and the urethra has been somewhat sensitive. The condition has grown worse since January, 1910, with frequent urination, and he was treated with irrigations of the bladder and instillations.

When the patient came under my care, in March, 1910, a general examination, except that of the urinary tract, was negative. The prostate was slightly enlarged, and an enlargement was felt in the region of the left seminal vesicle. Repeated examinations showed a residual urine of 200 c.c., which contained a great deal of pus and slime. There was no tenderness nor enlargement in the region of the kidneys or over the bladder. The urethra accepted a 29 F. steel sound. The bladder was irrigated daily, and a solution of nitrate of silver instilled. The urine cleared up considerably, but could never be kept entirely free from pus and shreds.

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* Read at the 43d annual meeting of the Minnesota State Medical Association at St. Paul, Oct. 5 and 6, 1911.

Cystoscopy.—After thorough irrigation of the bladder, 350 c.c. of a boric-acid solution was left in the viscus and the cystoscope introduced. The bladder was found to be much trabeculated, and there was evidence of cystitis. The left ureter could not be seen, but in that region a black hole was seen. This opening (Fig. 1) was oval in outline with the lower border somewhat straighter than the upper. It was about 1 cm. in its longest diameter, and its margin was thick, as shown in the cut, with blood-vessels and radiating folds of mucous membrane curving over it. Thin whitish shreds could be seen floating in and out of the opening. It was impossible to get the cystoscope into the opening. The left side of the posterior wall of the bladder was bulging forward (Fig. 2), and the right ureteral orifice was on a plane more posteriorly. A diagnosis of diverticulum was made, and to verify this diagnosis an *x*-ray picture was taken after introducing 400 c.c. of a 5 per cent collargol solution into the bladder, a method first used by Volcker in radiographing the kidney pelvis. With the patient flat on his back, the plate did not show anything abnormal, but with the patient turned about 35°, the diverticulum showed up very well (Fig. 3).

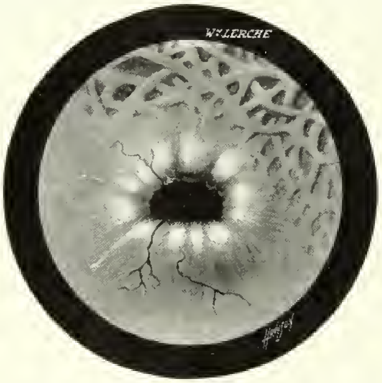

Fig. 1. Cystoscopic view of the diverticular orifice.

The radical removal of the sac was decided upon. In planning the operation the thought occurred to me that if the diverticulum could be distended independently of the bladder, with the latter in a somewhat collapsed condition, it would materially lessen the difficulty of dissection by converting the diverticulum into a tense cyst and raising it higher up in the pelvis. To that end I had little rubber sacks made (Fig. 4), which could be fastened securely with a silk thread to the ureteral catheter and wrapped around the latter, a tiny rubber band (A, Fig. 5) being slipped over to keep in place the bag B. When the bag is distended this rubber band is forced off and later passed by the urethra. The funnel-shaped part of the proximal end of the catheter is cut off (C, Fig. 5) in order to enable this end to be introduced backwards through the distal end of the catheter-carrying tube on the cystoscope. A Brown-Buerger cystoscope is used for the purpose. Fig. 6, A, shows the catheter with the rubber bag being introduced into the mouth of the diverticulum, B. When the rubber bag is in the diverticulum, boric-acid solution or normal saline is injected through the catheter into the sack until resistance is noticed. The corresponding amount of fluid is drawn off from the bladder. The bulging rubber bag can also be observed in the mouth of the diverticulum through the cystoscope. The number of c.c. used will give the exact size of the diverticulum. When the latter is fully distended the proximal opening of the catheter is plugged by a thick straight needle. The diverticulum in my case measured exactly 200 c.c.

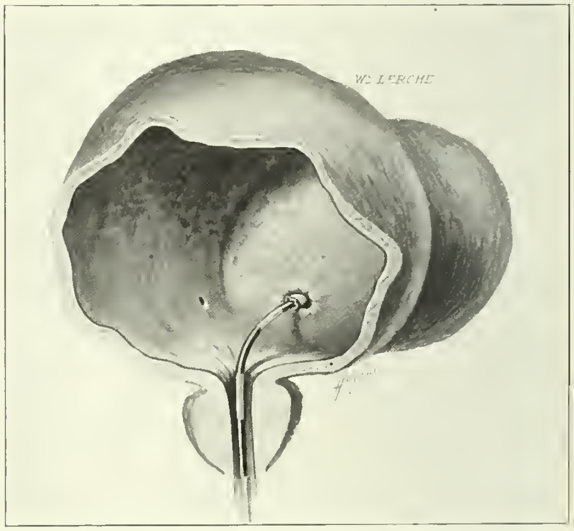

Fig. 2. Diverticulum distended by an inflated rubber bag.

Operation.—With 350 c.c. of a boric-acid solution in the bladder the rubber bag on the ureteral catheter was introduced into the diverticulum through the cystoscope, and 200 c.c. of boric acid solution was injected into the rubber bag in the diverticulum, while the corresponding amount was let out of the bladder, leaving about 150 c.c. of the solution in the latter. The distended diverticulum could be felt per rectum like a tense cyst. Ether was used as the anesthetic. Through an incision 10 cm. long through the left rectus muscle with the patient in the Trendelenburg position, the pelvis was entered extraperitoneally. The peritoneum was stripped off from the left side of the bladder and the pelvic wall, and the tense wall of the diverticulum was reached. The benefit of the rubber-bag scheme was immediately appreciated. An attempt was made to dissect the sac off from the peritoneum, but this could be done only half way around on account of the firm adhesions. The outer layer of the wall of the diverticulum was therefore cut through, and the sac could then be shelled out. The left ureter was found on the mesial side of the diverticulum, being pushed to the right, and the left seminal vesicle was behind and underneath it. The diverticulum had undermined the trigonum, and it extended backward into the hollow of the sacrum and was adherent to the rectum. The rubber bag was now emptied, and, on cutting through the neck of the diverticulum from the left side, the bag with the catheter could be pulled out through the abdominal wound. The orifice of the left ureter was seen on the mesial wall of the diverticulum, about 1 cm. from the opening into the bladder (Fig. 7). The diverticulum was removed and the opening in the bladder sewed up with two layers of continuous formalized catgut sutures, the left ureter being implanted into the bladder through the same opening. Split-tube drainage with a gauze wick, was left in the large extra peritoneal cavity, and the abdomen was closed except for the drainage opening. A retention-catheter was left in the bladder. The extraperitoneal drain was removed on the fourth day. Frequent spasms interfered with the bladder drainage, and a posterior urethrotomy was therefore made and a large tube put into the bladder. The neck of the bladder was found hard and fibrous and did not admit the tip of the forefinger. The patient made an uneventful recovery and left the hospital on the thirty-fourth day. Three weeks later I removed part of the median prostatic bar per urethram with Young's ingenious instrument under local anesthesia. The patient has been well since and has gained in weight. The urine was cloudy for some time after the operation.

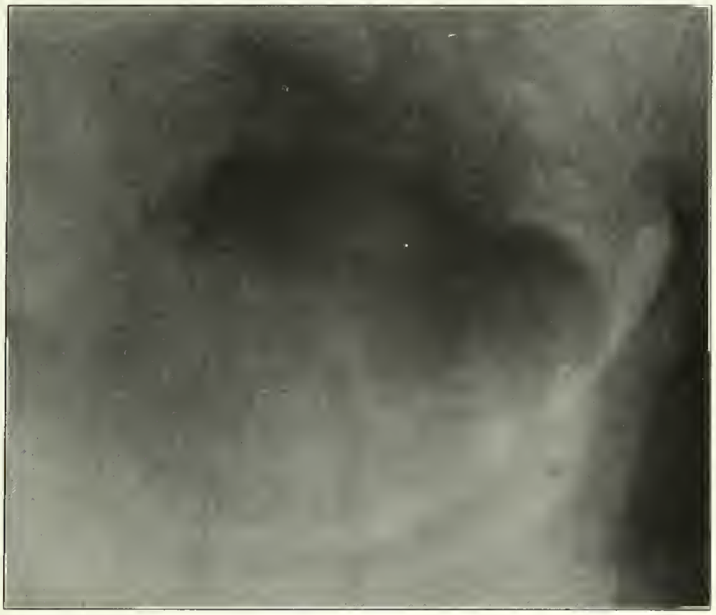

Fig. 3. Radiograph of the diverticulum and bladder taken from the left side.

The various routes taken in the radical operations reported:

a. Vaginal route—Alexander.

b. Sacral route—Pagenstecher.

c. Suprapubic intraperitoneal route—Riedel, von Eiselsberg.

d. Suprapubic extraperitoneal route — Czerny, Young (3 cases), Wulff, Porter, von Eberts, Kroiss, Zaaijer, Brongersma.

Other methods of treatment:

1. Simple incision through the vaginal wall and drainage of diverticulum—Chaput.

2. Establishment of a fistula by sewing wall of diverticulum to the skin of the abdominal wall—Ljunggren.

3. Perineal drainage of diverticulum behind bladder—Cholzoff.

4. Perineal drainage of bladder—Case reported by Burckhard.

5. Forcible stretching of the orifice of the diverticulum—Guibal, Mumford, Langer.

6. Curettement of mucous membrane of the diverticulum through suprapubic cystotomy, freshening the margin of the orifice of communication and suturing of the latter without drainage—Pousson.

7. Invagination of diverticulum into bladder, freshening of margin of orifice and closure intraperitoneally—von Eiselberg.

8. Enlargement of the orifice of communication between diverticulum and bladder or a new anastomosis—Lennander, Serrelach, Ljunggren.

9. Division of the walls of the bladder and diverticulum and suturing of the cut walls—Young.

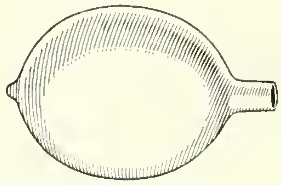

Fig. 4. Rubber bag (actual size).

10. Suprapubic drainage—Englisch, Strauss, Fisher, Harrison.

The case of Pean, which, by several writers, has been counted as a diverticulum, has not been included here. These congenital malformations are perhaps better grouped with cases like those of Wolfler and Colzi as double bladders.

Etiology and Pathology.—By diverticula are meant the limited protrusions or bulgings of the bladder-wall, which affect only a small portion of the periphery of the latter. They have been described under various names, as diverticulum, saccus, sacculus, bladder cell, hernia tunicaire de la vessie, cystocele interna, vesica accessoria, etc.

Englisch divides them into diverticula of the bladder:

a. Whose walls consist of muscular fibres and mucosa. (Taschen.)

b. Whose walls consist of mucosa only. (Zellen.)

The English writers, Targett and Harrison, distinguish between sacculi and pouches of the bladder.

In this paper I am using the term *diverticulum* for both varieties, simply distinguishing the one with a coat of muscularis and mucosa as a "muscular diverticulum," and the other whose wall has mucosa only as "mucosa diverticulum."

a. Taschen (the muscular diverticulum), according to Englisch, may develop in utero, due to some obstruction to the outflow of urine, such as agglutination of the urethral epithelium. If the obstruction exists only for a short time it may leave certain parts of the bladder wall weak, which, later in life, may become the seats of diverticula if an obstruction to urination comes on (hypertrophied prostate). This type of diverticulum is rare. They are mostly found (1) near the ureteral orifices on the lateral walls, (2) towards the base above the interureteric bar, and (3) at the summit in the region where the urachus enters the bladder. The reason for this regularity is explained by the peculiar arrangement of the muscle bundles in the latter localities. They occur most frequently single on the left lateral wall near the ureteral orifices, but there may be two or three diverticula in the same bladder. The orifice of the diverticulum ranges from 1 to 10 cm. in width. In size they vary greatly up to six times as large as the urinary bladder.

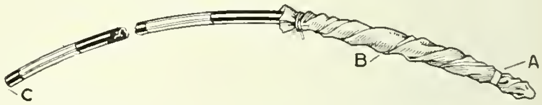

Fig. 5. Rubber bag B, tied to a catheter and held by a rubber band (A).

b. Zellen (the mucous diverticulum) is of quite common occurrence, as it develops mostly in the trabecular bladder in consequence of hypertrophy of the prostate. The orifice of the diverticulum varies in width from 2 mm. to 2 cm. or more. In size it ranges from that of a pea to that of a bladder or larger. It may occur singly or in large numbers. Englisch has seen a bladder with 40 diverticula of which 28 contained calculi. It is less regularly distributed than the muscular variety, and is found mostly on the posterior wall above the interureteric bar towards the summit and on the sides above the ureteral orifices towards the summit; rarely on the anterior wall.

Targett describes *sacculi* as protrusions of mucous membrane through the muscular coat of the organ, in consequence of some mechanical obstruction to the outflow of urine. They occur mostly singly, but two or three may be present. They have narrow mouths and may occur at any part of the bladder except the trigone, but are most frequently met with towards the base. The explanation may be that the felting of the muscular fibres is here most interrupted by the entrance of the large vesical arteries. *Pouches* consist of an irregularly shaped protrusion of all the vesical coats more or less thinned by distention. They have wide mouths and are not infrequently the result from the pressure of a vesical calculus.

Harrison gives as causes for the formation of sacculi: (1) intra-uterine, (2) obstacles to micturition, (3) traumatic. Harrison describes pouches as mere depressions in the most dependent portion of the bladder in which the whole thickness of the wall is involved.

There is a case reported by Holmes (Transact. of the Pathol. Society of London, 1864-65) in which a large mucous diverticulum was found post-mortem in a new-born, and the cause given as obstruction to the outflow of urine. While Englisch considers the presence of a muscular coat in a diverticulum as an indication of it being congenital and that the mucous diverticulum is always acquired. Targett and Harrison seem to take quite the opposite view.

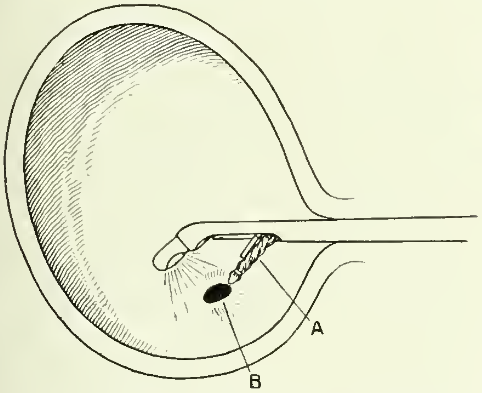

Fig. 6. Catheter with a rubber bag in the cystoscope ready to be introduced into the diverticulum.

The conclusions to be drawn from the above are that both varieties of diverticula may form before birth or develop later in life, but in both instances in consequence of some obstacle to the outflow of urine.

An entirely different view is taken by Pagenstecher, who considers the diverticula, like the double bladder, due to anomalous embryonic development. However, there seem to be no stronger arguments in favor of this view than of the former. Even if the ureteral orifice is in the diverticulum, it does not necessarily mean that the latter is congenital, because the weak spot in the bladder wall may have been where the ureter enters, and, as Targett says, the ureteral orifice becomes gradually shifted.

It is quite interesting that the very same question was years ago discussed in regard to the pressure diverticula of the esophagus. Some writers maintained that the diverticula with muscular coat were congenital, while those which had only a mucous tunic were acquired. Zenker opposed this view and considered all pressure diverticula of the esophagus acquired, and he doubted that any of them had a muscular coat, and he proved the absence of muscle fibres in a specimen that had been described as muscular.

Inflammation is a grave complication of the diverticulum, and it may be acute or chronic. Cystitis may be primary and extend into the sac causing diverticulitis or *vice versa*. Most diverticula have thin walls and little, if any, power to contract. If the sac is dependent and the orifice of communication with the bladder small, stagnation may take place. Therefore with inadequate drainage the pathologic process is progressive. Peritonitis, pelvic abscess, and thrombosis of vessels may follow diverticulitis. A large diverticulum may compress surrounding organs and cause damage, particularly to the ureters and in consequence to the kidneys, causing hydronephrosis and later by ascending infection pyelonephritis and pyonephrosis. Calculi and new growths are not infrequently found in the diverticula.

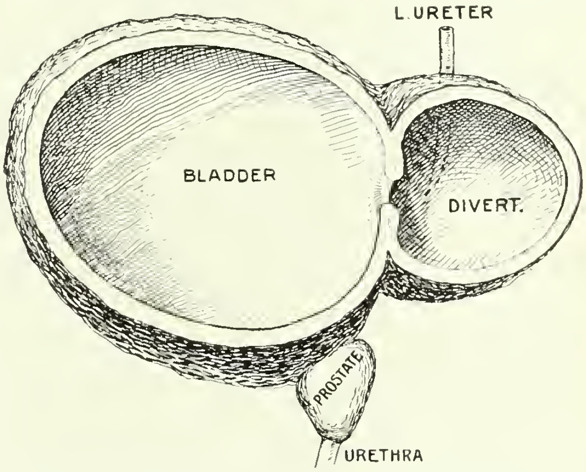

Fig. 7. Lateral view of the bladder and the diverticulum showing the position of the left ureter.

Symptoms.—A diverticulum may be present in the bladder without giving rise to symptoms, and it may be discovered accidentally or post-mortem. There is no pathognomonic symptom of the disorder, but the most characteristic one is that the patient after urination feels as if the bladder had not been completely emptied, and he is able almost immediately to repeat the act, voiding a considerable quantity. This is explained by some of the urine from the diverticulum pouring into the bladder after the latter has emptied itself and thereby stimulating the viscus to renewed evacuation. Sometimes there is painful urination, particularly in large diverticula. In several instances tumor has been felt above the symphysis or *per vaginam* or *rectum*. However, it is with the advent of complications, especially inflammation, that a diverticulum gives rise to symptoms. Cystitis or diverticulitis is the most frequent complication and it is accompanied by the usual train of symtoms, i. e., painful and frequent micturition of turbid and sometimes stinking urine. Hematuria may appear early before diverticulitis is present, due to circulatory disturbances, perhaps from distention. In my own case there was early in the history a diverticulitis of a more chronic type with periodic discharge of large quantities of slimy pus, followed, later, by an acute acerbation. Sometimes in a case of long standing the secondary kidney disorder may overshadow the bladder trouble.

Diagnosis.—The introduction of the catheter immediately after the patient has urinated will usually disclose a considerable quantity of residual urine. By the aid of the cystoscope the opening into the diverticulum may be found, and a ureteral catheter may be introduced into the latter to roughly estimate the depth. If the opening into the sac is sufficiently large the cystoscope can be introduced through it, and the interior of the sac inspected. The diverticulum may be measured with my rubber bag as described above, and then palpated bimanually while distended. *X*-ray pictures taken, lateral and frontal view, after the bladder has been filled with a 5 per cent collargol solution, are of the greatest value, especially where it is impossible to make a cystoscopy.

SPONDYLITIS DEFORMANS, WITH A REPORT OF CASES*

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The term *spondylitis deformans* will be used in this paper in the ordinarily accepted sense as including all those chronic lesions of the spine in which there is a stiffness, due to an ankylosis of the vertebral joints, and an ossification of the vertebral ligaments. It may be confined only to portions of the spine or it may weld the entire spine, pelvis, and cranium into one rigid structure.

Virchow described the disease and classified it on a pathological basis into those cases in which the small articulations of the spine are chiefly involved, and those in which the ankylosis is chiefly due to a formation of bone in the ligaments along the sides and front of the vertebral bodies. This classification was allowed to stand for many years until Bechterew, in 1892, described a type of spinal rigidity which he considered as a distinct disease entity. It was characterized by a rigidity of the spinal column beginning in the cervical region and with kyphosis formation, nerve-root symptoms, no involvement of the hip- and shoulder-joint, and giving, etiologically, a history of lues, trauma, or inheritance. His conception of the lesion was that it was essentially a nervous disease with secondary bone-changes due to trophic disturbances or to atrophy from pressure and disuse on account of the paretic condition of the muscles. He reported an autopsy in which there was a pachymeningitis with compression of the nerve-roots.

Strumpell, in 1898, under the name of *chronic ankylosing spondylitis,* described a type which was characterized by an involvement of the shoulder- or hip-joint, complete spinal ankylosis, kyphosis not always present, no nerve-root symptoms, an involvement, primarily, of the intervertebral disks and anterior ligaments and, etiologically, giving a history of rheumatism or infection. Similar cases to those described by Strumpell have been reported by Marie, Anstie, and Leri; and Marie, ignoring the joint symptoms, gave to this type the name of *spondylose rhizomelique.*

Since this time "rigid spine" has been one of the most discussed diseases. The number of cases which have come to autopsy have been relatively few, and the clinical cases which could be placed definitely in either the Bechterew type or that of Strumpell-Marie were also rare. Scarcely a single clinical observation presented a case which would completely fit either class; and, as a consequence, every case was a compromise, and first one and then another classical symptom was dropped as unessential, in order to make the cases conform to the old classification. A change came about when Anschutz and Magnus-Levey attempted to show the identity of the two types, and this contention was strengthened by the work of Frankel, who offered an anatomical basis, which has received more and more acceptance. Today there is scarcely an author besides Bechterew who is convinced of the duality of the process from an anatomical standpoint, or, in fact, even from the clinical side. The text-book picture of "poker back," being due to a deposit of bone which looks as though it had been melted and poured over the vertebral bodies, is deceptive and is probably due to the description being of museum specimens of unknown clinical history. Actual autopsies do not confirm this description. The writer has been able to collect from the literature about 20 autopsies of cases with known clinical diagnosis. In practically all of these, the prominent feature is an ankylosis of the small or true vertebral joints. The cartilage is completely replaced by spongy bone, as are also the capsular ligaments. In the more advanced cases there is an involvement of all the ligaments and also of the rib joints. In many cases the intervertebral cartilages are compressed anteriorly, and there is a distinct but irregular deposit of bone in the anterior and lateral ligaments. The point to be especially noted is, that, while the ossification of the ligaments is irregular and often lacking, the changes in the cartilages of the small joints are constant. In those cases in which some of the vertebræ are only slightly affected, it is the articular surfaces which show the greatest change, while, as yet, the capsule has escaped. This would certainly tend to show that, chronologically, the joint surfaces are primarily affected. The microscopical examination proves this quite conclusively. It shows in those joints in which the process is beginning a change of the hyaline cartilage into fibrous tissue with a growth of pannus reaching out from the edges, and this before the capsule itself is involved at all. The whole picture is quite the reverse of that seen in an ordinary osteo-arthritis, which is characterized by an hypertrophy of the edges of the joint cartilages with the formation of osteophites and regressive changes in the joint surfaces, but no marked tendency to ankylosis. In the most advanced cases of rigid spine, in which the ossification of the ligaments is complete, there is still no hypertrophy of bone or lipping of the joint edges.

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* Read at the 43d annual meeting of the Minnesota State Medical Association at St. Paul, Oct. 5 and 6, 1911.

In this connection it would be well to state that reference has not been made to that type of spinal rigidity known as *ostitis deformans* of the spine. This type is characterized by lipping of the joint edges with the formation of osteophites, which bridge over the squeezed-out intervertebral disks and tends to form a bony ankylosis. Clinically, this presents a disease picture so different from the other type as to offer little room for confusion. This condition occurs mostly in old people, is usually free from pain, and is, in fact, rarely recognized unless the case comes to autopsy.

If the Bechterew and Strumpell-Marie types are indistinguishable clinically and if it is shown that pathologically they are but variations of the same disease process, the question of their etiology still remains. Bechterew claims for his cases a luetic, hereditary, or traumatic history, while Strumpell-Marie claim an infectious or rheumatic history. Heredity in disease is an uncertain affair, and no one but Bechterew was able to find cases with a distinctly luetic history. The one point of difference still remains of trauma on the one hand, and of an infectious or rheumatic taint on the other. A case recently reported by Wehrsig is of special interest in this connection. He reports the case of a 40-year old man who had a nine-foot fall ten years before and severely injured his leg and spine. This was followed by intense pains in the back, and while he recovered from the leg injury within a couple of months, the pain in the back persisted and was followed during the next few years by a typical "rigid spine." The ankylosis of the spine was complete, as was that of the ribs and the left shoulder. He finally died of pulmonary tuberculosis, and the autopsy showed a typical small joint ankylosis. There was a smooth, non-deforming ossification of all vertebral ligaments.

Here is a case which conforms very closely to the Bechterew type except for the involvement of the shoulder, which would place it in the Strumpell-Marie type. Wehrsig has collected 116 cases in which he finds a rheumatic or infectious taint given in 40 per cent of the cases, gonorrhea in 9 per cent, spinal meningitis in 1 per cent, gout in 1 per cent, and in the rest of the cases no cause could be made out. It is thus shown that over 75 per cent of the reported cases give infection or trauma as the probable cause. The pathological findings in which trauma is the cause of the rigid spine are identical with those cases giving an infectious history. Is it not reasonable to consider the injury as a predisposing cause and infection as the real cause? While it is true that trauma is not an ordinary cause of infectious arthritis in the peripheral joints, still it sometimes appears to be an exciting cause, and the vertebral joints with their slight range of motion and greater exposure to constant strain, are probably more susceptible.

Has anything as yet been shown which will lead us to consider "rigid spine" as in any way different from chronic arthritis, as it shows itself in other parts of the body? The pathological findings, so far as we know, are identical. Nothing but the distribution of the process remains, and this is not enough. Because certain types of infectious arthritis are confined to definite portions of the anatomy, as, for example, those cases in which only the phalangeal joints are affected, such cases would not be considered as constituting a disease entity.

McCrea holds that, not only is chronic ankylotic inflammation of the spine identical with infectious arthritis in the peripheral joints, but ostitis deformans of the spine is but another manifestation of the same disease. In the opinion of the writer this is going too far, for both clinically and pathologically they differ radically. His view is, however, consistent with his teaching that arthritis deformans and infectious arthritis are the same process, and that both are essentially infectious. In this opinion he stands almost alone, as the authorities are coming to consider more and more that arthritis deformans and infectious arthritis are distinct diseases, pathologically, clinically, and etiologically, even if cases are shown of a mixed type. However, the question has not been definitely settled and must be left to the future.

The limits of this paper will not allow a comprehensive discussion of the clinical diagnosis and treatment of spondylitis deformans, but the writer wishes to emphasize a few points. Ordinarily the diagnosis is easy, but some incipient cases are remarkably suggestive of lumbago, sacro-iliac strain or Pott's disease. In rigid spine the pain is more apt to be referred to the nerve-distribution, but without the nerve itself being sensitive to pressure. Often the pain is worse after rest in bed and is relieved by limbering-up motions. Sometimes during sleep, while the muscles are relaxed, some movement or change of position brings on a severe paroxysm of pain with muscular spasm of the entire dorsal region, which may last for several minutes. Where the pain is severe there are usually definite areas of hyperesthesia, due to nerve-root pressure. The limitation of motion in lumbago is usually not prominent, is due, purely, to muscular spasm, is usually confined to the lumbar region, and disappears under an anesthetic. The limitation of motion in spondylitis deformans is also due, to some extent, to muscular spasm, but there is a true stiffness of the spine besides this which can usually be differentiated. Some cases of "rigid spine" in which the kyphosis is confined to a relatively small portion of the spine, may be confounded with Pott's disease. The nature of the buckle will usually separate the two. In Pott's disease the kyphosis always begins as an angular prominence while in "rigid spine" it is rounded from the first. While "rigid spine" as a whole is fully as slow in asserting itself as Pott's disease, the formation of the kyphosis seems to be more rapid. It does not grow from a small lump, but some morning the patient suddenly realizes that the spine is deformed. In "rigid spine," the kyphosis may vary in extent from time to time, but in Pott's disease there is never any regression.

The treatment of "rigid spine" is of much more importance than generally recognized. While actual bony ankylosis is beyond repair suitable support will relieve the pain and arrest the process. The important thing to remember is that these cases taken in their incipiency, can almost all be arrested, and very many of them can be completely cured. Nerve-root symptoms usually improve with the arrest of the process, but in severe cases of motor paralysis the recovery is only partial.

SUMMARY

1. The Bechterew or Strumpell-Marie types of "rigid spine" are not independent diseases, but merely inconstant and variable clinical types, often merging into each other and of little value as a practical classification.

2. Traumatism is an important etiological factor, but is probably a predisposing cause only.

3. The essential feature of spondylitis deformans is an infectious arthritis of the small or true vertebral joints. The ossification of the ligaments and intervertebral joints is secondary.

4. "Rigid spine" is a local manifestation of infectious arthritis, or arthritis deformans, modified by its peculiar distribution.

5. Clinically, spondylitis deformans in the early stages is often confounded with lumbago, Pott's disease, or sacro-iliac strain. It is more amenable to treatment than is generally supposed.

CASES

Mr. F., aged 45, farmer; his mother had a lame back for years, and an uncle had a stiff back. Ten years ago he began to have pains in the back, radiating into the arms and epigastric region. These pains were noticed particularly every year after riding on a mower or harvester. During the lighter work of winter the pains disappeared, but came back every fall. In 1908 he was so lame that he could not work for several months. In February, 1909, he visited John Till, the Almena "plaster doctor," who applied his usual croton-oil plaster to the back. After this he was very much worse. He was then seen for the first time by the writer.

The back was then almost completely stiff from the first lumbar to the fourth cervical. There was a pronounced rounded kyphosis. He complained of pains in the upper dorsal and cervical region and in the epigastric region, and at times in the legs. There was a feeling of numbness from the axilla to the feet on both sides, and tactile sensibility in this region was under normal. Heat and cold sense, normal; patellar reflexes, exaggerated; no ankle clonus; pronounced weakness in the muscles below the waist. He walked with a weak, staggering gait. A spinal brace with a head-support was fitted, and the patient was not seen for several months. The brace relieved the pain in the cervical region at first, but it was soon discarded. He seemed to think that the pain was worse if he could not change the position of the spine once in a while.

He was next seen in January, 1909, when he had been brought into the city to be treated by a so-called chiropractic. The pain in the upper part of the body was much less severe, but the pressure symptoms in the legs were much more pronounced. The patellar reflexes were greatly exaggerated, and the ankle clonus was easily elicited. Tactile sensation was still nearly normal. He had slight voluntary power in any of the muscles below the waist, and painful tremors were almost constant. The one prominent symptom so far as the patient was concerned, was pain in the legs. This changed its distribution from time to time, but was constant and excruciating. The chiropractic placed him on his stomach on a table every day, and, with the aid of either one or two assistants, attempted to correct the deformity of his back. It required only a few treatments to produce a complete anesthesia from the ribs down with an almost complete relief from pain. The motor paralysis was complete, and there was complete incontinence of urine and feces. The chiropratic kept up this treatment every day for over eight months during which time there was no change in his condition.

When seen a few days ago he was back again on his farm. The tactile sense was lacking below the lower border of the ribs on the right and below the crest of the ilium on the left. He was able to distinguish deep pressure, which he could not do at one time. He had some position or muscle sense. The patellar reflex was extreme, as was the ankle clonus. The tremors had stopped, but he had pronounced athetoid movements, which sometimes drew his knees up to his chest. The ankylosis of the spine reached from the pelvis to about the third dorsal, and above this the spine had limbered up and movements were nearly normal and free from pain. He was lifted into his buggy every day, and drove about the farm overseeing the work. He was apparently cheerful and happy.

So far as I am able to find this is the only case of a complete paraplegia due to spondylitis deformans.

Incidentally, it may be mentioned that this case is a typical case of the Bechterew form of rigid spine.

Mr. T., aged 66; farmer. His back has been weak for the past two years, and he often had to lie down and rest after bending over at his work. After getting very warm when working, in July, 1910, and then cooling off suddenly, he was seized with severe pains in his back, chest, and shoulders. During the fall and winter he had recurring attacks of the pains and by January, 1911, he was confined to his bed. It was then first noticed by his family that his back was getting bent. When first seen by the writer, in April, he presented a rounded kyphosis of an extreme type, reaching from the lower dorsal region to the upper cervical. Part of the time he was so bent over that one could not get a finger between his chin and sternum. He complained of severe pain radiating from the upper dorsal region around both sides of the chest and into the right arm. There was a region of hyperesthesia over the lower right cervical region. The power in his right arm was below normal. The tendon reflexes were normal. He wore a head-extension in bed for a month, which relieved his pain considerably. He was then provided with a removable plaster jacket and a jury-mast, and sent to his home in the country. When seen a few days ago he was able to walk about in comparative comfort. The ankylosis of the back was complete from the lower dorsal to the mid-cervical region, but above this the movements were comparatively free. He is still wearing his original jacket and jury-mast. He has recently developed a painful swelling of the left elbow-joint. This case was seen by several competent men who were of the opinion that it was a tubercular process, but the subsequent course of the disease disproves that.

Mrs. B., aged 24. Has always lived a healthy, outdoor life. Took an active part in college athletics. Has always been well, except for a very intractable constipation. While nursing her first baby she had severe pains in the lumbar and sacro-iliac region. Movements of spine were restricted, especially in the lumbar region. Pain often worse at night. Goldthwait's sacro-iliac symptoms were not present. Walked about quite bent over. Two months later she got out of bed during the night and was seized with a severe "stitch" in the back and dropped to the floor. The pain and muscular spasm were extreme, and she had to be carried to her bed. Spent several weeks in bed, and her pains nearly left her. The spinal stiffness, however, increased, and the normal dorsal kyphosis became prominent. The rib motion was also restricted, and her breathing was distinctly abdominal in type. A light Hessing corset was fitted, and she was forbidden to lift her heavy baby or otherwise strain herself. Three months later her spine had a nearly normal range of motion, and she could paddle a canoe or play tennis with comfort.

Miss H., aged 36. Had scarlet fever when six years old, since which she has had a weak and painful back with a slight total scoliosis and a pronounced dorsal kyposis. At present she has a nearly rigid spine from the sacrum to the lower cervical region. There is hyperesthesia and intense pain in the coccygeal region, and some referred pains in the neck, arms, and calves of the legs. A tonic and rest treatment with counter-irritation relieved the pain except that in the coccyx. The coccyx was finally removed with complete relief of this pain. She was fitted with a light reinforced corset, and she returned to her work as a bookkeeper in relative comfort.

Mr. N., aged 21; farm laborer. Had a severe strain of back at 14, which kept him in bed for some time. Since then he has had attacks of pain every spring with a gradual growth of deformity in the back. Through it all he has done the heaviest kind of farm labor. He is now very muscular. He has an extreme rounded kyphosis, including the entire thoracic region. This is perfectly rigid. Normal motion is present in the rest of the spine and nearly so in the ribs. At present he has no pains or sensitiveness in any part of the spine. Comes because of the deformity. A change of occupation was advised with a brace if pain returns.

Mr. P., aged 60; street-sweeper. Much exposed to wet and cold. For the past fifteen years he has been getting stiff and rheumatic. Recently noticed that his back was so stiff that he could not bend over. Comes for treatment because of pain in the lumbar region. He has a perfectly rigid spine from the sacrum to the middorsal region. A plaster-of-Paris jacket was applied, and a change of work advised. Two months later he reports that he has a job as a watchman. Has had little pain since the jacket was applied.

DISCUSSION

Dr. R. H. Sayre (New York City): I have little to add to what the reader of the paper has said. It is something about which we are very ignorant. These cases of arthritis of the spine, *spondylitis deformans,* I believe, in the majority of cases, are infectious, many of them due to gonorrheal infection. There are cases in which all the joints are involved, as well as the spine, and I think certainly those are of gonorrheal origin. Rigidity of the spine, which may be induced, is certainly very remarkable, and the involvement of the vertebrocostal articulations, inhibits respiration sometimes to such an alarming extent as to very materially interfere with the nutrition of the patient. I have no question about the usefulness of mechanical support of the spine, just as I believe in rest to any inflamed joint, in the spine or elsewhere. Whether that inflamed joint be invaded by tuberculosis, syphilis or gonorrhea, rest is one of the requisites, and the longer it is delayed the longer will be the delay of the restoration of the function.

In gonorrheal cases I believe the use of vaccine will be very useful. I have found it very useful in arthritis of the foot resembling flatfoot, conditions of feet due to old gonorrheas which have left arthritis of the tarsal joint. In those cases I have been enabled to get much relief by the use of gonococcal vaccine, giving them from one hundred million to two hundred and three hundred million gonococci as the case progressed, giving an injection every other day for perhaps eight to ten injections. The vaccine acts better in these old cases than the antigonococcus serum, which is of so great use in acutegonorrheal infections of joints.

Dr. Arthur J. Gillette (St. Paul): I think the only thing I can add to the paper, and if I might digress just a little and still hold to the paper in a way, is to say that I have heard a good deal today about pains in the back and from men who, in their articles, have spoken of kidney troubles and have referred to pain in the back. I am very much interested in this subject. About a year ago we had, in a medical meeting of the Ramsey County Medical Society, a symposium on pain in the back. I experienced a great relief at this meeting for I had often been afraid that in my enthusiasm in regard to pain in the back I might have overlooked a case of appendicitis, floating kidney, or something of that sort.

A number of men, specialists in abdominal surgery and men who treat women's diseases, have stated that none of these diseases cause pain in the back. What I mean by pain in the back is not a pain a man may have now and then, but a persistent pain; and I think it is safe to say that in nearly every case of chronic or persistent pain in the back there is something wrong in the spinal colmun.

Many infections are grouped under spondylitis deformans from gonorrhea, tonsillitis, typhoid fever, nose and ear, in fact any infectious disease may manifest itself in the spine. It is surprising to me how many times people complain of a pain in the back and say they have never had their backs examined by a physician. It is a fact that it is a term frequently used and we usually think it of no consequence. I believe that every time a patient comes to you complaining of pain in the back you should thoroughly examine him to determine if there is not something wrong there.

Often there are just such cases as Dr. Reed referred to today. They suffer and are given salicylates and iodides and all that sort of thing, but there is never an actual diagnosis made of their condition. Dr. Sayre referred to the fact that it does not make any difference what the matter is with a joint, if it is inflamed immobilization is a very important treatment, for it not only relieves the pain, but it relieves the irritation and necessarily relieves inflammation; and in every one of these cases the pain can be relieved by proper support.

ABDOMINAL CONTUSIONS, WITH REPORT OF CASES*

By Carl J. Holman, M. D.

MANKATO, MINN.

The seriousness of injuries to the abdominal wall depends upon the damage inflicted upon the underlying viscera or upon the peritoneal lining. Contusions limited to the wall itself call for no special consideration and require the usual first-aid care; although intra-abdominal injury is to be considered, and emphasis laid upon the recognition of the severity of internal injury, where there is no appreciable external visible injury. Local treatment of contusions of the abdomen is to be adopted only where we feel quite certain that no damage has been done to the contained viscera.

In severe contusions muscular attachments may be torn loose without visceral injury. Contusions come from blows of blunt objects, falls, compression between heavy objects, and trauma inflicted upon a local area. Either the wounding object or the body may be in motion. The causes of injury may be—

Blows,
Kicks,
Falls against obstructions,
Spent balls,
Passage of wheels across the abdomen,
Crushing by machinery,
Over-exertion in which the recti muscles, diaphragm, or the erector spinæ are ruptured.

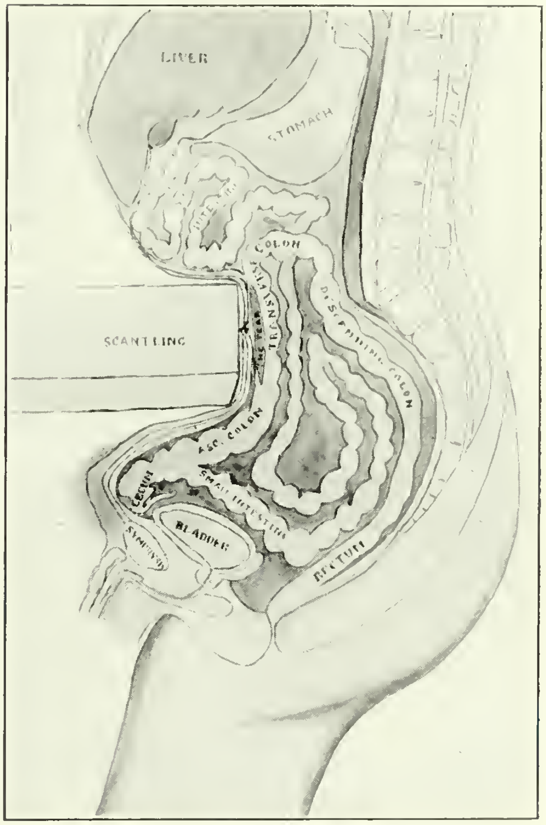
The type of injury, whether glancing, oblique, or indirect, depends upon the angle of impaction. The tension of the abdominal muscles at the time of injury controls its effects.

A common source of injuries is horse-kicks. Illustrative of this I will report the case of S.:

Case 1.—After being kicked in the right loin by an unshod horse, he was seen by me twenty-four hours after the accident. The symptoms were rigid belly, hematuria, pain, vomiting, fast pulse, and elevation of temperature. A laparotomy showed rents in the large bowel, bloody fluid throughout peritoneal cavity, and a crushed right kidney. Death followed peritonitis within forty-eight hours after the injury.

The following is a case illustrative of blows from pieces of wood thrown from circular saws. The notes are furnished by Dr. P. F. Holm, of Wells:

Case 2.—While M. was running a circular saw on May 24, 1910, at 1:15 P. M., he was hit below the umbilicus by a long, hardwood scantling. There was no visible evidence of injury beyond a slight redness. He walked to his home, a distance of three or four blocks. An hour later, Dr. Holm was called, as the patient was suffering to some extent. A little morphine relieved the pain, and he rested well that night. Pulse, 100; temperature, 99.50°; respiration, thoracic.



A tear in the transverse colon.

The next day his condition grew steadily worse, and he died on May 26 at 4 A. M. An autopsy showed general peritonitis. There was a tear in the transverse colon four inches long, and ecchymosis of the stomach and intestines were discovered. (See cut.)

The following is a report of a case illustrating blows from wagon-poles:

Case 3.—Van B. was seen by me six or eight hours after being struck in the abdomen by the end of a buggy-pole while attempting to stop a runaway team. Vomiting, pain, abdominal distention, and rigidity, were present, with a pulse of 100, and a temperature of 99.50°. Laparotomy revealed a contused small bowel and blood in peritoneal cavity. The cavity was drained, and a stormy convalescence followed. There were a fast pulse, vomitting, etc. A second, third, and fourth operation was done for obstruction caused by adhesions, death following the last one after resecting sixteen inches of small intestine.

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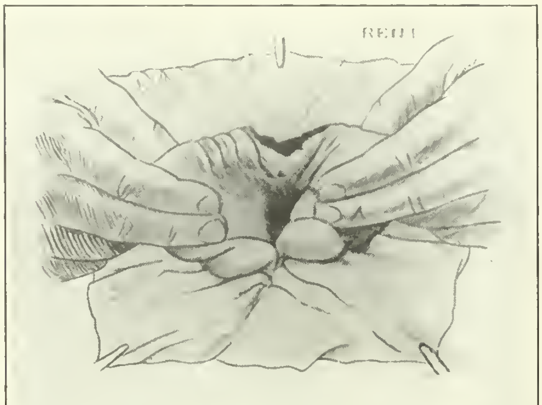
* Read at the 43d annual meeting of the Minnesota State Medical Association at St. Paul, Oct. 5 and 6, 1911.

Case 4.—This case was one of butts from a bull. Mr. H., aged 47, was in his pasture in the morning at about 11 a. m., and was attacked by a dehorned bull, butted in the abdomen, and felled to the ground. The dog and a neighbor succeeded in driving off the bull. The patient walked to a neighbor's house nearby where he ate a good dinner. He went home and began to complain of pain in the lower abdomen, and vomited freely. The pain became more severe, and I was called at 5 p. m. Dr. Froelich accompanied me.



RENT IN BOWEL. AFTER LEJARS.

After learning the above facts we found the abdominal muscles quite tense; pulse, 100; temperature, 99°; respiration, normal; general appearance, not good. The severity of the injury, the vomiting and pain, and the rigidity of the belly muscles made me feel that he should be treated in a hospital, and I advised his removal, a distance of six miles, which was done. He was seen at St. Joseph's Hospital by Dr. F. Dumont, Dr. G. R. Curran, Dr. E. T. Sanderson, of Minneota, and Dr. H. Luck.

The pain had become more severe, though he had four grains of morphine. The need of an exploratory incision was explained to him, and he consented. This was done in the presence of the above-named physicians, at about 9 p. m. On incising the peritoneum, thin, milky white fluid exuded. There was free fluid throughout the general peritoneal cavity. A loop of small bowel was drawn up, and a perforation as large as an ordinary lead-pencil, the edges of which were somewhat ragged, could be seen. The accompanying drawing is a fair representation of the condition.

A purse-string of linen thread was put in and the edges invaginated, and another row of Lembert stitches were used. Drainage by rubber tubing was provided for in both lower flanks. He was put in the Fowler position, and continuous proctoclysis was used. An uneventful recovery followed, and the patient returned to his home in seventeen days.

Case 5.—E., boy, aged 11, was stepped on by a 1,100-pound horse on a Monday. Severe pain and collapse with bloody urine resulted. I was called on Wednesday morning. Examination showed a large tumor-mass in the region of the left kidney; pulse, 100; temperature, 100.5°; respiration, 20; and pain and tenderness on pressure over the left kidney region.

The patient was removed to St. Joseph's Hospital. The leucocytosis, 18,000. At 5 p. m. incision was made over the left kidney region, letting out a pint of bloody urinous fluid. Found the kidney crushed and severed as shown in the accompanying photograph. Complete nephrectomy was done, and the artery and vein and ureter were tied *en masse*. An uneventful recovery followed. (See cut.)

Case 6.—Mr. W. J., probably intoxicated, while driving an automobile which turned turtle, was jammed against the steering-wheel over the upper part of the abdomen. When I saw him the next day there were many places of ecchymosis over his face and neck, and bones of the forearm or one arm were broken. There was abdominal distension with pain, and vomiting. He had been given morphine liberally. Death resulted that evening. Post-mortem showed the liver bruised, and blood in the general peritoneal cavity.

In direct blows, injury to a hollow organ is usually caused by compression between the striking object and some bone, as the spine or ilium. Direct blows striking upon a coil distended with gas or fluid, especially if the contents are confined by any form of constriction, will produce a rupture by bursting from within. Oblique and, occasionally, direct blows tear the gut by overstretching it in its long axis, or they will tear it from its mesenteric attachments, or from a portion that is normally or pathologically fixed, the location of the injury depending in these cases somewhat on the angle of impaction.

In diffuse impaction as when the abdomen strikes a broad flat surface, the lesions may be caused by direct contusions, by bursting or by tearing of an attachment.

In vertical falls and probably blows from behind, the heavy solid organs or the loaded intestines are forcibly torn from their attachments, the tear invading the lumen or not, as the case may be. The stomach is rarely ruptured by a force that would rupture the intestine.

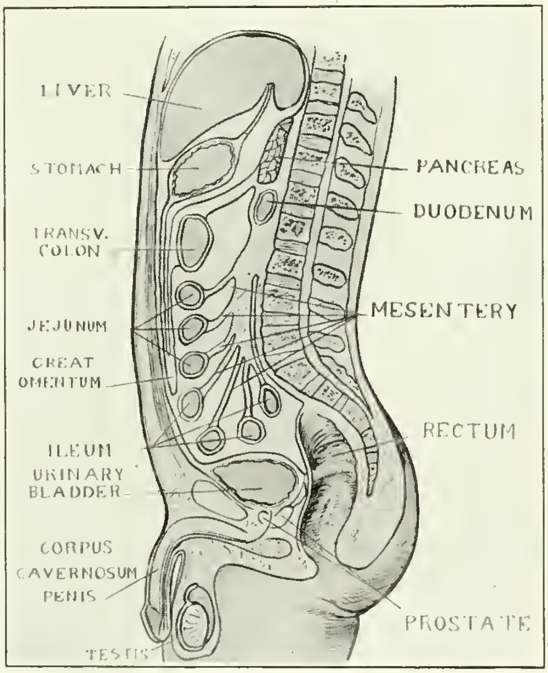
Crushed kidney.

Ruptures may be single, multiple, partial or mixed, and near a complete tear we may find an incipient tear. The mucous coat only may be involved, and in bursting tears the peritoneal coat. Partial ruptures at the time of injury may break down after the lapse of a few days, or may contract and form constrictions after months or years. When only the inner coat is destroyed it may be passed in the stools at a later period.

Contusions or tears of mesentery may cause serious immediate hemorrhage, or, later, death from interference with its blood-supply. There are no signs that are pathognomonic of visceral trauma.

The symptoms are shock, vomiting, shallow respiration, pain, and rapid pulse. These may be present without existing visceral injury. Shock, pain, and vomiting vary in degree in different individuals during the early hours, so that these symptoms are not always to be relied upon. It is said that if vomiting persists or recurs we are quite certain of peritoneal irritation. Muscular spasms and tenderness vary with the patient, and it is said that if these come late we may infer that the lesion is serious.

The presence or absence of peristalsis is of the utmost importance from a diagnostic or prognostic standpoint. Its early presence indicates that the abdomen or its contents have received some shock or violence. The persistence or recurrence of this sign is conclusive proof of internal or visceral injury. A decided lessening of peristalsis is a danger signal if it occurs more than three or four hours after the accident. Active peristalsis is always encouraging in the presence of any abdominal injury.



Sagital section of human body, after Sobotta.

Bottomley says that there is no sign, or combination of signs, sufficiently constant to indicate the nature of the injury, or to serve as a basis for diagnosis, or, as Harris so well said eleven years ago, "With our present means and methods of diagnosis we cannot be positive of the changes that are going on within the abdomen." Maurice Richardson says, speaking on internal injuries of the abdomen at the St. Louis meeting, "Except in urgent cases I take all the time that is necessary to come to a positive conclusion. But there is a reason in all things. After violent blows on the abdomen, to wait for symptoms enough for a positive diagnosis is to let pass the only opportunity for successful intervention."

Leucocytosis will be too slow in showing itself to be of value; in other words we should not wait for the leucocyte count to be increased, because our patient will be that much nearer death from general peritonitis.

The exploratory incision is the only means we have for learning the definite lesion in time so that our treatment may be of avail. To wait for definite intraperitoneal signs to develop is to wait too long. We should not be deceived into a false sense of security by an improvement in the early symptoms.

Increasing spasm and tenderness surely point to peritoneal infection.

Morphine should not be given, for it masks the symptoms. Waiting for an increase in liver-dullness and the presence of fluid in the flanks is a useless waste of valuable time. The pulse may remain slow, and yet the abdomen may be gradually filling up with blood.

The mortality of severe injury of the intestines in expectant treatment is said to be 100 per cent.

Surgical treatment, by exploration, preferably quite soon after injury, should, from the very nature of things, give the best results. In cases of doubt aseptic exploration is safer than delay until evidence of positive proof shows itself. Intestinal suture or resection; suture or packing of rents, or rent in solid organs; splenectomy; nephrectomy; or partial excision of the liver, pancreas, or kidney, may be called for.

A REPORT OF FOUR OBSTETRICAL CASES*

By Ernest V. Smith, M. D.

ADAMS, MINNESOTA

In obstetrics there are many cases which in a general way are much alike, yet there are never two cases exactly alike, even in the same patient. Just as there have never been two individuals with exactly the same temperament of mind and of the same physical characteristics, we find no two obstetrical cases exactly the same, because the nature of a case depends upon the disposition of the patient and upon her physical condition. The cases which I shall report to you do not illustrate any difficult points of technic in delivery, but rather pertain to the welfare of the mother or the child preceding and following delivery.

Case 1.—This case is the confinement of Mrs. E. A., aged 49, the mother of seven children, and also grandmother to four. Her last previous confinement was in 1900, the youngest child being ten years old at the time of the present confinement.

I was called to her first on the morning of July 7, 1910. She was in the first stage of labor, dilatation just beginning. Examination showed the presenting part to be very high in the pelvis and the head in the right lower epigastric region. Plainly, it was a breech presentation. As the membranes had not ruptured, the question of bimanual turning naturally presented itself to my mind. I have always been an advocate of letting nature have her way, so I decided to trust again and deliver the child breech first. It was explained to the husband that it would be a tedious labor, and that I would return when the pains were hard and coming every five minutes, and for him to call me. I was called again at four in the afternoon. The pains were good, and the dilatation was two-thirds complete. The presenting breech was down well in the pelvis, and the membranes had ruptured. The labor continued till 8 o'clock, when a repeated examination showed a complete dilatation with the sacrum of the child posterior in direct apposition with that of the mother. Attempts to get it to rotate were futile. At 9 o'clock the pains began to weaken and a neighboring physician was called to give an anesthetic while I delivered the child by pushing the breech up and with my hand bringing down the feet. The trunk was delivered easily, but some difficulty was experienced in bringing down the anterior shoulder and arm.

The after-coming head was easily delivered, a finger being passed into the baby's mouth, and the body of the child lifted, the head being delivered in the usual manner. Resuscitation was not difficult.

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*Read at the Mower County Medical Society, October 10, 1911.

The mother passed through a normal puerperium.

On the third day I noticed a well-marked brachial palsy of the right arm of the baby. It was retained in a sling by pinning the sleeve to the front of its dress, and recovery was complete in about three weeks. When the baby was ten days old the father came to my office and desired that I go with him to see the baby, saying that there was a bunch on each side of its neck which they were worried about. Examination revealed, as he had said, a swelling on each side of the child's neck the size of a small hen's egg. The swellings were in and a part of the sternomastoid muscles, oval in shape and taking the course of the muscle, as hard almost as cartilage, and not fluctuating or painful. There was no discoloration of the skin. To me this was something new, and as to the diagnosis and prognosis my mind for a moment was a blank. I explained to the parents that the condition was a rare one, and that the best treatment was to leave it alone, not to rub the swellings, and that in the course of a few weeks they would disappear.

When I returned to my office I spent some time in trying to figure out my diagnosis, and after looking through five or six works on diseases of children and obstetrics I found what I was looking for, under "Hematoma of the Sternomastoid Muscles." Holt says hematoma of the sternomastoid muscle is a rare condition, usually noticed during the second week of life, and it disappears spontaneously without causing any permanent deformity. About two-thirds of the cases occur following breech presentation. It is much more frequent on the right side than on the left. In twenty-seven cases collected by Henoch the right side was involved in twenty-one and the left in only six cases. The explanation of this difference is to be found in the obstetrical position. Rarely both sides may be involved.

The swelling slowly diminishes in size, and by the end of the third month recovery is complete.

Hematoma of the sternomastoid is due to the twisting of the head during parturition. It is not an evidence of the employment of any improper force in delivery. The condition requires no treatment. Operative interference is positively contra-indicated. In my own case I, at least, try to make myself believe that no improper force was the cause of the hematomas; however, when the life of the child depends on its being delivered quickly it is hard to say how much force is permissible.

That the brachial palsy was due to a misapplied pressure in my attempt to bring down the anterior arm and shoulder I will admit, but the delivery of the after-coming head was easy, and no unusual strain was given it. Kerley, in his "Diseases of Children," states that sternomastoid hematomas are always due to unusual force in delivery, but I cannot convince myself that it is true.

Case *2*.—The second case which I wish to have you consider is that of Mrs. M. K., aged 44, mother of six children, the youngest child being six years old at the time of the present confinement.

When this patient was five months pregnant she had an attack of appendicitis from which she recovered without operation. She was confined on April 26, 1910. Her confinement was normal in every respect save one. During the time that she was being delivered she complained of a great deal of pain in the right side, which seemed to be in the region over the appendix. No importance was attached to this symptom at the time of delivery because the pain seemed to be more severe at times, corresponding to labor pains. The delivery was accomplished at about 4 P. M. At 9 o'clock the same evening I saw the patient and she was still complaining of pain in the right side.

Examination did not reveal any tenderness, and the pulse and temperature were normal. The following day the pain was much less severe, and the patient rested well. On the afternoon of April 28th, the patient was troubled with quite a little distention of the bowels. An abdominal binder was applied and a high colon injection given, the results were not satisfactory from the injection, and two tablespoonfuls of castor oil were given. On April 29th two small stools and some gas came away, but there was still a marked distention with gas. With such symptoms present I suspected a low-grade peritonitis as being the cause of the bloating; however, there were a normal pulse, no temperature, and no pain.

On April 30th the abdominal distention had increased. High injections were used and laxatives given, but without marked result. Examination of the abdomen at this time showed it to be greatly distended, and there seemed to be pockets of the gas as if only three or four coils of the bowel were involved. The largest area of tympany was on the right side and, in outline, was about the size and shape of a football. The lochial discharge was normal in every respect. Temperature and pulse were still normal. On May 1st I had two things to consider in this case: either a low-grade peritonitis, which had no effect on the temperature and pulse, or an obstruction of the bowels due to adhesions from the old appendicitis. Possibly both were present. Consultation with Dr. M. S. White, of Minneapolis, was held; and operation was advised. The patient was operated on on May 3d, and adhesions were found about the bowels in the region of the appendix, which, when the bowel was distended with gas, completely occluded the lumen of the bowel. Portions of the colon, as well as the ileum, were becoming gangrenous. The patient died on May 6th. An autopsy was obtained, and the findings concurred with the findings at the operation.

The way that I interpret the symptoms is, that so long as the womb was enlarged it held the intestines high up in the abdominal cavity, and the adhesions occurred in that position, but as soon as the womb was emptied and the bowels dropped back to their normal place, the adhesions caused an obliteration of the lumen of the bowel.

Case 3.—The third case is that of Mrs. A. S., aged 26, mother of one child, two years old at the time of present confinement.

The patient was examined first on January 13, 1908. She was pregnant eight months and complained of a pain in the epigastric region, and a constant dull headache. Examination of the urine showed about 1 per cent albumin. The patient was put on a rigid diet and her bowels kept open by the use of salines and the mild chloride. The pores of the skin were opened by the use of warm baths. Examination of the urine on January 21st, or seven days later, showed less than 0.5 per cent of albumin. A repeated examination of the urine on February 7th showed only a trace of albumin. The patient was confined February 10th, at 5:30 a. m. The confinement was normal in every respect.

I remained for an hour after the delivery, and as my patient seemed to be doing finely, I left, but before leaving I instructed the nurse that if the patient showed any symptoms which she did not understand to call me.

At 9 o'clock the same morning I received a hurry call to return, for, as the messenger said, Mrs. S. was having fits. I hastened to her and arrived when she was in the midst of the second convulsion. With chloroform I controlled the convulsions, giving just enough to be able to tell when a convulsion began and ended. Hot wet packs were applied, and three drops of croton oil on sugar was placed on the back part of her tongue. Ten drops of the fluidextract of veratrum viride was given hypodermically. Very near a quart of blood was drawn from the median vein. Hypodermoclysis of a quart of normal saline was given under the breasts. The pulse, which at 9 o'clock was 140, by 1 o'clock was down to 100. During this time she had had over twenty convulsions, all of which were controlled with choloroform as well as possible without complete anesthesia. At 1 p. m. five drops more of veratrum viride was given. By 2 o'clock the pulse had dropped to 80, and there had been no more convulsions. The patient's bowels were moving very freely, and she was also perspiring freely. She regained consciousness at about 7 o'clock the following morning, but was in a semicomatose condition the greater part of the day. Improvement from that time on was rapid. She has had one child since and had no trouble.

By this case I had one or two points of value impressed upon my mind: first the value of epigastric pain as a symptom preceding eclampsia; secondly, I am convinced that the measure which does most toward saving the patient in eclampsia is venesection followed by hypodermoclysis.

Case 4.—The fourth case helps me to emphasize the first point made in the last.

Mrs. M. H., aged 40, mother of seven children, the youngest child being two years old.

I was called to see the patient on February 27, 1909. She was almost eight months pregnant, and was complaining of a great deal of pain in the epigastrium. Her color was bad, simulating jaundice. The nature of the pain and the color of the patient made one think of hepatic colic; however, an examination of the urine proved it to contain more than 3 per cent of albumin. The whole amount would coagulate when heated in a test-tube. She was passing less than a pint in twenty-four hours. Salines were given, and all food withheld for the first day. The patient was encouraged to drink freely of water, and hot packs were used, but in spite of treatment the patient continued to grow worse. The albumin increased in amount, and the pain became more severe. An albuminuric retinitis began to develop, and it became very plain that something had to be done. Consultation was had, and labor was induced. Active labor began in about two hours, and after six hours she was delivered of a poorly developed child, which made a rapid recovery from all her symptoms and two weeks after delivery there was not a trace of albumin to be found in her urine.

I realize that these four cases, which I have died on the third day after delivery. The mother reported for your consideration, do not pertain in their entirety to what you might expect in an article on obstetrics, yet if I am able to provoke a discussion on the diagnosis or treatment of similar cases I shall feel amply repaid for my trouble.

CHRONIC CHOLECYSTITIS AND ASSOCIATED AFFECTIONS*

By S. B. Haessly, M. D.,

RED WING, MINN.

The condition of chronic infection of the gall-bladder has only of recent years been given the study and observation that this rather common affection demands. I have reviewed the histories and hospital records of 79 cases of gall-bladder diseases that have come under our observation in the past two years.

Of the 79 cases, 23 had gall-stones, and 56 were chronic infections of the gall-bladder. In 27 of the infected gall-bladder cases we found associated with it chronic appendicitis, or the patient had been operated on at some previous time for chronic appendicitis. The pancreas was found affected in 15 cases.

No age is exempt from this trouble. Our youngest case was eight years and the oldest sixty-seven. Three cases occurred under the age of twenty; 19 between twenty and thirty; 15 between thirty and forty; 12 between forty and fifty; 6 between fifty and sixty; and 1 between sixty and seventy. Gall-stones occurred as follows: 1 between twenty and thirty; 2 between thirty and forty; 7 between forty and fifty; 8 between fifty and sixty; and 5 between sixty and seventy. You will observe that infections of the gall-bladder were more frequent between the ages of twenty and forty; and following this period, from forty to sixty, we find gall-stones to be more common.

The relation of sex is as follows: Gall-stones occurred twice in the male and twenty-one times in the female. Infected gall-bladder occurred in 23 males and 33 females. Pancreatitis occurred in 12 males and 3 females, and while gall-stones and infection of the gall-bladder occurred more frequently in the female, pancreatic involvement was more common in the male.

The previous history of the cases of infected gall-bladder is significant. Jaundice at some previous time was present in one-third of the cases. Periodic digestive disturbances were still more common. In several of the cases they had had what was thought to be typhoid fever, but the disease ran an unusual course, with relapses and prolonged convalescence. The history of chronic appendicitis was obtained in practically one-third of the cases.

Following one of the above-mentioned conditions, they began having, at recurring periods, attacks of headache, nausea, vomiting, anorexia, and sometimes eructations of gas, lasting one or more days. Epigastric pain and distress were sometimes present,—and the bowels were usually constipated, though diarrhea occurred occasionally.

Headache was present in all but one of our cases, varying in intensity from an occasional attack to an almost incessant type. Vomiting gave, in a few instances, temporary relief, but usually not. Digestive disturbance preceded or accompanied the headache. Digestive disturbances were present in all the cases. Nausea and vomiting were present in most instances, the vomitus being greenish in color. The amount of digestive disturbance varied from periodic attacks to almost continuous indigestion. In some of the cases of pancreatic involvement only liquids could be tolerated; in other instances they were unable to digest starches. The headache and digestive disturbance were the two symptoms most frequently found. Epigastric pain and distress usually accompanied the attacks. The pain in some instances was typically that of gall-stone colic. The bowels were usually constipated, attacks of diarrhea being not uncommon. Clay-colored stools were present in the cases having obstruction of the biliary tract. A rise of temperature of one-half to one degree was frequently noticed during these exacerbations. In one case there were recurring fever and chills every six days for six months previous to operation.

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*Read before the Southern Minnesota Medical Association, at Rochester, Minn., August 3, 1911.

The state of nutrition varied with the amount of digestive disturbance, the loss of weight being more common in the cases associated with pancreatitis. In a few cases the loss of weight was so rapid as to suggest malignancy. The skin and sclera presented a peculiar muddy, yellowish appearance, this condition being accentuated during attacks of headache and indigestion. Tenderness over the gall-bladder and Morris Richardson's point, and also over McBurney's point when the appendix was involved, and rigidity of the right rectus muscle were usually present during these attacks. Tympany of the bowels was present in a few cases. Stomach analysis showed little change. Hydrochloric acid was slightly diminished, and some mucus was present. In a few cases of long standing considerable mucus was found. Uranalysis was negative. Fatty stools occurred in two cases in which the pancreas was acutely inflamed. In the remainder of the cases no particular change was noticed. Blood-examinations showed moderate anemia in the worst cases.

The appearance of the gall-bladder at operation varied. In most instances it appeared thickened and whitish in color. Some that appeared normal were found, on being opened, to be affected. Omental adhesions were found in a large per cent of the cases. Some of the adhesions were of recent formation, while others were of much longer standing. Cases operated on during exacerbations showed congestion and, in a few cases, a distension of the gall-bladder. In five cases complicated with pancreatitis marked distension was noted. In these cases a peculiar, labored respiration was present, and it continued even under anesthesia, becoming normal immediately after the tension in the gall-bladder was relieved. I can offer you no better explanation of this phenomenon than to say that it is due to reflect stimulation through the celiac plexus.

The mucosa of the gall-bladder appeared a bright red, like the conjunctiva of an inflamed eye, in the more recent cases; in others it was considerably thickened. In one case we found it had the appearance of fur with whitish bodies attached to the villi. It was in this case that we obtained the history of recurrent chills and fever, mentioned above. The pancreas was enlarged in one-fourth of the cases. This enlargement was usually quite firm, but in a few cases it was soft. The stomach was practically normal. Chronic adherent appendicitis was found in one-half of the cases. The gall-bladder contained in all the cases a black, tarry, tenacious fluid.

Following the operation a slight temperature occurred, and considerable tympany was present for the first three to five days, which was relieved when the bowels were thoroughly evacuated. The discharge from the gall-bladder was at first black and tarry, much like that found in a gall-bladder when first opened. This became clear in from five to fifteen days. In a few cases very little discharge was present the first three or four days. Drainage was continued from ten to twenty days. In four or five days after the operation the appetite began to return, the skin and sclera became clearer, and, the patients felt, as one of them put it, "like a new being." The bowels were usually constipated till the drainage of bile ceased. The digestive powers improved rapidly, so that patients were able to partake of and digest food they had not been able to eat for years. In cases that were emaciated, a rapid gain in weight occurred. In one case a gain of twenty pounds in four weeks was made. In a few cases of long standing and in which considerable mucus was present in the stomach-contents, lavage of the stomach was necessary to clear up the stomach symptoms.

The results of operation in our cases are as follows: 52 were relieved of the symptoms for which they came for operation and 2 cases were improved for six to eight months, when the symptoms returned.

The one fatal case in this series presents some unusual features, and I shall give the history in detail. The patient, a male, forty years of age, gave a specific history: Eight years ago he had what appeared to have been typhoid; his wife was sick at the same time with typhoid, which ran the usual course and gave a positive Widal. The patient ran a temperature for three months. Repeated Widals were negative; and following this attack there were each fall a recurrence of indigestion, bowel disturbance, loss of weight, and temperature of from one-half to one degree, lasting about six weeks. A Widal was made each year, but was negative. These disturbances would improve on salol, saline cathartics, and milk diet. In the fall of 1910, on a return of the symptoms mentioned above, a Widal was made, and the report returned negative. A diagnosis of infected gall-bladder was made, and drainage advised, which was done. The first four days following the operation the case ran the usual course. This was followed by a rise in temperature, severe rhinitis, and cough. Examination showed consolidation of the lower lobe of the right lung. Later, diarrhea occurred, rose-spots appeared, and on the twelfth day hemorrhage from the bowels took place. Two days before death a Widal was made which was returned positive. Death occurred on the fourteenth day following operation. The infection in the gall-bladder was undoubtedly typhoid, and at operation some of the infected contents were discharged into the intestinal tract in such quantity as to produce a severe attack of typhoid fever.

The cause of this trouble is undoubtedly due to infection from the intestinal tract, most probably through the biliary ducts. The association of this trouble with chronic appendicitis and pancreatitis would seem to substantiate this origin. What the nature of the poison formed in the gall-bladder may be I am unable to say. Whether it is purely bacterial in origin or whether due to perverted metabolism from impaired function of the liver and pancreas, time and further observation will undoubtedly determine.

We have tried medicinal treatment, but have found only temporary benefit from intestinal antiseptics, saline cathartics, and milk diet. The immediate and pronounced improvement in all these cases following drainage of the gall-bladder cannot but impress us with the fact that the best treatment is surgical.

SURGERY OF THE THYMUS GLAND*

By Charles H. Mayo, M. D.

ROCHESTER, MINNESOTA

The problem of the so-termed internal secretions is of fundamental importance in the science of medicine. Its solution would radically change some of the present indefinite symptomatology, aimlessly directed therapeutics, and erroneous records of mortality. Up to the present time the attention has been focused mainly upon the following structures: the hypophysis, thyroid, parathyroids, thymus, pancreas, adrenals, testes, ovaries, the lymphatic and the chromaffin system. However, investigations seem to prove that other organs also are concerned in these complex processes. The literature on the subject is quite extensive, but a review of the work which has already been done is especially impressive from the lack in uniformity in the results obtained. In many instances the results of experimentation are even contradictory, suggesting a lack of parallelism in many of the factors concerned. However, despite their evident indefiniteness, the observations have emphasized one important fact, namely, that in our investigations of these structures their corelationship in physiologic function and pathologic disturbances must be constantly before the mind.

Evidence indicates that the thymus is concerned with the period of growth. There is a wide divergence of opinion as to the life of the gland, but it is generally accepted that this may be divided into two phases, a period of progression and a period of retrogression. Views vary considerably as to the time of its highest activity. Many place this time at the end of the second year; some at about the sixth year. Recent writers maintain that the thymus increases to the time of puberty, when retrogression begins. It is not uncommon to find the gland of considerable size in quite advanced age. Because of these various views, there is necessarily a lack of uniformity in the opinions as to what constitutes a persistent thymus. It has been shown that a decision should not be made on macroscopic examination alone, but that a microscopic investigation is also essential. The effect of previous infective diseases on the structure of the thymus is an important consideration in determining the normal. It is held that an enlarged thymus is commonly associated with goiter, and that this condition is responsible for many of the post-operative deaths. It has also been stated that many of the deaths from anesthesia are due to an enlarged thymus in association with a "status lymphaticus." From our series of deaths following operation for exophthalmic goiter this view of the importance of the thymus is not supported. In some of our cases the thymic structure proved to be nothing more than a vestige, and but one case gave evidence that the thymus was a factor in the death.

The treatment indicated for an enlarged thymus which is producing symptoms is thymectomy. The operation is not difficult, as a rule, and the only evil consequences which have followed this operation have been due to sepsis or other complications, and not to the operation itself.

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*Author's abstract of a paper read before the American Surgical Association at Montreal, May 31, 1912.

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THE DULUTH MEETING

A moment's consideration of the conditions under which the Duluth meeting of the Minnesota State Medical Association will be held, should convince everyone that the meeting can be made the largest the Association ever held outside of the Twin Cities, and the most enjoyable and profitable of all meetings.

The time (August 14th and 15th) and the place (Duluth) are ideal for a brief midsummer vacation; and there never was a time when so much of profit can be had out of a meeting of this kind. "Progressivism" is abroad in the land and the "stand-pat" physician is about as useless, yes harmful, as the stand-pat politician, and very soon the public will tolerate neither of them. Possibly some reader may ask what we mean by a "stand-pat" physician. The answer is easy. He is a man who never attends a medical meeting, and there are lots of "him" in Minnesota, and, moreover, he cannot much longer hide himself from the public.

The Duluth physicians will give you a royal welcome and a royal good time. The railroads will deliver you and return you with promptness and in good order, and the hotels of Duluth will look after your comfort while under their roofs.

The cost of the trip is moderate, and thus there seems to be no reason why every "progressive" physician in Minnesota should not be present.

THE NEW PUBLIC HEALTH

The publication in our columns of Dr. H. W. Hill's series of papers on "The Public Health," will be suspended during July and August, but will be resumed in September.

It is not probable that any papers upon this subject in recent years have attracted so much attention as have the series by Dr. Hill. The one thousand or more advance proofs of each article sent by THE JOURNAL-LANCET to the lay press of the Northwest have given newspaper editors, and readers, an opportunity to see what the medical profession is doing to abolish disease. The active work of medical and other scientific journals in the general crusade against disease, a crusade led and conducted by medical men, is producing a revolution of which even many medical men cannot see the end.

As stated in our news items, Dr. Hill's services are soon to be lost to the Northwest, and of the value of those services we shall have "a word or two" to say at another time.

OLD AGE

Metchnikoff believes that he has discovered the bacteria whose culture in our bodies will prolong human life by delaying old age! This investigatian and study has been going on for years, and many theories have been advanced to prove the contention. A Spanish physician promulgated the idea that as we advance in life we lose certain essential salts in the blood which maintain the elasticity and healthfulness of the blood-vessels; and to prevent an arterial decay he formulated a combination of these salts to be used as a serum hypodermically, or to be taken by mouth, but in larger doses. This theory seems reasonable and has for its basis the present method of conducting our daily lives.

The average man of today, surrounded by the rush and turmoil of a strenuous existence, succumbs to arterial changes. He neglects the modern methods of hygiene and sanitation even though they might offset his strenuosity.

In the older countries and in the rural districts, the prospects for a life full of years and comfort is to be expected. In a recent book by a Carlsbad physician, "Old Age Deferred," a number of examples are cited in which men reached the ages of 120, 142, and even 150 years. In these cases all of the aged men lived simple lives. They were simple in their habits, they observed regular but moderate hours of work, their responsibilities were reduced to the minimum, and they ate coarse bread, drank sour milk, ate very little meat, and they all led active sexual lives, and in the latter indulgences it was sometimes difficult to restrain their passions. In fact, some of them married late, very late in life, in order to continue their sexual activities.

The diet of simple foods and the drinking of milk, sweet or sour, probably kept them from acquiring auto-intoxication, which is the most common cause of arterial changes.

The advance of old age is, quite likely, the outcome of our modern methods, and it is refreshing to see an occasional old person who gains in sweetness and stability as the years go on. Unfortunately, the average person who grows old does not do so gracefully. Irritability, failure of memory, and other changes in character make old age a burden to the bearer and his immediate family. If this can be averted by effort, discipline, regular habits, and study, then it is worth while, but if incapacity and disease are the result then old life is not desirable. When a man has lived as he should and finally attains a competency, physically and mentally, he should be permitted to enjoy the many years that are his due. A century is not too long if one is primarily equipped for it, but it is many years too long if man begins to degenerate and deteriorate before his time. There is nothing more disagreeable than a crabbed, irascible, and disgruntled old man, and there is nothing more enjoyable than a calm, equable, and cheerful man who grows old graciously and who retains his faculties up to the time that the spark of his life flickers out suddenly.

FACTORS IN SCIATICA

The term *sciatica* is not infrequently used in a very loose manner, and indefinite pains about the lower trunk and anywhere in the lower extremity are often classed under this term.

When the pain or tension in the back part of the thigh and leg is actually present, or when there is tenderness over the point of exit of the great sciatic nerve, the physician is commonly contented to call it a sciatica without further investigation.

A sciatic pain is rather common, and a sciatic neuritis is very rare. The former condition is accompanied by painful points over the notch, above the crest of the ilium, down the course of the sciatic trunk and at various points about the knee, ankle, and foot. When a neuritis really exists there is a change in the sensation in the thigh and leg, a wasting of one or more groups of muscles, and, in the later stages, a contraction or a contracture of the limb. These conditions should not be misinterpreted, and a reasonably careful analysis of the symptoms, their onset, and course, will render the diagnosis comparatively simple.

The cause of a pain along the sciatic is one that demands exacting and painstaking investigation. One of the most common causes, and one that is frequently overlooked, is a disease within the pelvis. A fibroid of the uterus, a cyst of the ovary, or a pelvic deposit may cause sufficient pressure to account for it. A tipping of the uterus is a not infrequent cause. Such conditions or diseases may be removable and the pain relieved. Many gynecologists can cite instances of this sort, yet until such a cause is ascertained the patient may be treated by electricity, hot applications, or hypodermics of various sorts without relief. Diseases of the vertebræ, adhesions from appendiceal operations compressing the nerve, tuberculosis in the pelvis, cancer in the vicinity of the nerve-trunk, and flat-foot must be considered as possible causes.

The neurasthenic complains of sciatic pains, but they are intermittent and fluctuating. True sciatic pain is usually present only when the leg is raised to an angle of 45 to 60 degrees. The various diseases of the spinal joints which are accompanied by sciatic pain, can be determined by proper manipulation of the joints or by the use of the *x*-ray.

Intermittent limping is a condition mistaken for sciatica, and this may be due to a disease with pressure anywhere along the course of the nerve.

Osteomyelitis is accompanied by a rise in temperature and such other signs as would naturally call attention to a disease of the bone. A double sciatica is usually due to tuberculosis of the sacrum or a chronic systematic disease of the cord, like tabes or tumor of the caudal end of the cord. At all events a double sciatica should at once create a suspicion of a central lesion other than a rheumatic or gouty nerve.

Flat-foot is a common cause of pain designated as sciatic, and syphilis is an exceedingly frequent factor and one that promises, as a rule, a speedy recovery.

Sciatic blunders are common, and the actual cause can be found in the majority of cases, if it is sought.

BOOK NOTICES

Practical Electro-Therapeutics and X-Ray Therapy. By J. M. Martin, M. D. C. V. Mosby Co., St. Louis, Mo., 1912.

Written "for the student and general practitioner," these 450 pages are crowded with the necessary information, avoiding much technical description. The author has been fortunate in making the illustrations especially clear. The plus and minus currents especially of the static machine, need not be confusing if the text is closely followed.

The careful tabulation (page 145) of the polar properties of the direct current will be appreciated by electrotherapeutists, but is hardly clear enough for the beginner. Among many good features are the emphasis laid on measurements and control apparatus, permitting duplication of results.

Chapter 18 is important for the entire profession. The necessity for the combined use of the fluoroscope and esophagoscope in the removal of foreign bodies, is both described and fully illustrated here. This important advance in surgery, probably developed in the American Roentgen Ray meeting of 1910, is yet new to many of our profession, and this volume is an important contribution for reference study.

The Practical Medical Series, Volume VI, General Medicine: Billings and Salisbury Series, 1911

This volume reviews the current medical literature in the field of infectious diseases and diseases of the alimentary tract, together with those of the liver and pancreas, and also a few miscellaneous articles.

The importance of prophylactic vaccination in typhoid is emphasized and the method of administration given. The diagnosis of typhoid has undoubtedly been often erroneously made, especially in the milder and atypical cases; hence the addition to the literature on paratyphoid and Bull's disease, which resembles typhoid in so many ways, is of very great importance.

The book gives a résumé of the year's literature, culled for us by men capable as any to pick what, in vast amount, is worth our while to read and what is not. A careful reading of this, together with the others of the series, should prevent anyone from falling behind in knowledge of the recent advances of medical science.

The Dawn of the Health Age. By Benjamin Moore, M. A., D. Sc., M. R. C. S., L. R. C. P. P. Blakiston's Son, Philadelphia.

This is a most "quotable" book of less than 200 pages, in excellent, direct, terse English. It contains concise, frank, almost brusque formulations of the "medical-reconstruction" ideas now seething, but uncrystallized and unorganized, all over the English-speaking world. Although applying more particularly to Great Britain, the principles discussed deserve the most careful consideration everywhere.

A string of quotations will best show the character of this quite remarkable book. Thus:

> * * * hundreds of thousands of lives and millions of money can be saved every year if disease is attacked on scientific principles instead of being dallied with as at present.

The author addresses himself "equally to conservative and liberal, to humanitarian and economist, to capitalist and laborist, to individualist and socialist." (The author does not, it will be seen, address the medical profession. He assumes, presumably, that the "bone of contention" itself is always interested in its own fate.)

> The passion for drugging and doctoring the *individual* with specific cures and quack nostrums is one of the prepotent curses of our time, while the health and well-being of the *species* * * * are neglected (the italics are ours).
>
> At the present moment we possess sufficient knowledge of medical science to enable us to save at least three hundred thousand lives every year in this country alone, and the saving of these three hundred thousand valuable lives could all be effected without costing the nation a single penny, but rather at the same time many million pounds a year might be saved which under present conditions are absolutely wasted.
>
> In the face of all this spendthrift extravagance in lives and money, we eagerly call for more scientific research to enable us to cope with disease, utterly ignoring the rich harvest which medical science has already yielded ready to be garnered all around us.
>
> It is true that we are still ignorant of the causes and modes of propagation of certain diseases, and attempts to discover these are in themselves most laudable; but it is equally true, and much more important, that we do know perfectly how to combat some of the direct and most common diseases, and that we move neither hand nor foot to do so, but stand benumbed and useless, as if we were a race of savages without any polity or system of government or capacity for any concerted plan of action for the national welfare.
>
> The problems of disease, from which radically spring all the most important problems of social reform, require now to be tackled by statesmen, and not by doctors and scientists.
>
> The exponents of medical science have accomplished their aims in many important directions and

have laid their results before the public; they can proceed no further without concerted statesmanlike action, and it is for the public now to awaken statesmen into activity.

* * *

It is method more than money that we want in order to combat and conquer in our battles with disease; we must fight in the future by means of a disciplined army instead of, as at present, with an undisciplined mob, each member doing what is right in his own eyes and working at cross purposes to his neighbor.

* * *

With a self-satisfied air we make survey of what we term the modern advances in medicine and surgery, *as applied to tinkering the diseased individual,* and complacently the credulous public swallows the glorification, while we slumber over the thousandfold greater achievements possible to organized effort in the wholesale eradication of disease from the commonwealth. Meanwhile hundreds of thousands of the fittest of our citizens die yearly without one effort being made to save them.

Naturally our organized army of doctors would have to be paid, and this would cost the nation eight to ten millions a year; but this money is all paid now, and more than paid. All that is necessary is to pay it through different channels, and the advantage gained is that we shall possess, as aforesaid, an army instead of a mob.

Needless to say, no disrespect is meant to the medical profession by designating it as a mob. That term is only intended to signify that it is entirely lacking in the first elements of organization so far as dealing with the diseases of the nation is concerned, and preserving the nation in a fit state of health.

* * *

Even if it set about reorganizing itself on new lines, the profession lacks those effective compulsory powers of dealing with disease which will be elaborated in subsequent chapters, and these only can be given to it by legislation.

The problem of saving these hundreds of thousands of lives and millions of pounds of money annually is accordingly one for the public itself, led by those publicists who take an interest in medico-social problems.

* * *

The Briton, in the opinion of some superficial critics, will become a slave under such compulsory conditions when his home—his castle of dirt, ignorance, and disease—is visited by the health officer, and so he is advised to fight to the last gasp against such inspection.

In considering present systems (in England) of combating infectious diseases, systems far more developed than we have in this country as yet outside of a few of the largest centers, our author minces matters not at all. Thus:

Neither the medical practitioner nor the public health officer has any commission to go forth and find the disease, not even when an epidemic is on; no—the disease must come to the doctor. The enemy must walk past our outposts and into our camp, and ask to be attacked and arrested, before we stir hand or foot. Is not the whole thing too ludicrous for the serious consideration of anyone but the witch-doctor or medicine-man of a savage tribe? It is reminiscent of the days of burning for witchcraft or healing by incantations and charms.

The patient reports to the doctor, and the doctor reports to the medical officer of health, and the medical officer of health reports to the infectious disease hospital,[*] and then, if there is room, the ambulance is sent for the patient. Meanwhile, the disease germs have not been reporting at all, but have been going on with their business, and next day there is another case to be removed from the same house or the house next door, after "the tale of the house that Jack built" has been run through again. Is it any wonder that we have epidemics of acute infectious diseases?

* * *

The poor hard-working wife of the laborer, with all her family and housework to attend to, may be forgiven if she fails to understand even for two or three days what she thinks is a cold or sore throat in one of her children is the beginning of a serious infectious disease, and there is no one going round inquiring for sick children in the houses, even when it is known that a severe epidemic is in progress. No; the free-born Briton must be allowed to infect his neighbors in peace, and undisturbed by any domiciliary visits of a Health Authority. He is not permitted to neglect the mind of his child, but he can practically neglect the body, and its care and requirements, to his heart's content.

* * *

The better-circumstanced classes suffer less severely from infectious disease, not because they are immune, but because they are brought less in contact with it, in the first place; and, secondly, because they are better nursed and cared for when it falls upon them.

* * *

As well might we send forth the privateers and letters-of-marque of Queen Elizabeth's time to fight the modern navy of our most powerful rival, as go on with our present equipment for offensive action against disease, and hope or pray for a victory.

All honor to the wooden walls of England and to the memory of the brave men who fought within them, but their day is over; and all honor to our Municipalities and medical officers of health, and the private donors who have supported our Voluntary Hospitals like the old privateers, and fought the good fight against disease in the face of long odds. But the day of these things is passing away. Science has shown us a better and more excellent way.

Our author then considers the evils of the present "lodge-practice" system in England—probably greater there than as yet here; existing hospital systems (many of the criticisms here made do not apply to American hospitals of the better types at all); tuberculosis, in which emphatic demand for the *supervision of the infectious case,* rather than the cure of the incipient is made; and, finally, a national medical service.

---

[*] And the parson told the sexton, and the sexton tolled the bell.

Whatever may be thought of the sociology or economics of Dr. Moore's plan, his knowledge of the demands of modern public health represent the very best modern teaching of our leaders in America.

REPORTS OF SOCIETIES

THE HENNEPIN COUNTY SOCIETY

The Society met on May 6th, with forty-five members present.

Drs. Michael Bockman and Jalmar Simons were elected to membership.

A resolution endorsing the Owen bill was passed, and a copy of the resolution was forwarded to the Minnesota senators.

Dr. Emil S. Geist read a paper on "Congenital Dislocation of the Hip," and presented two cases, both girls.

Dr. Wm. M. Chowing reported a case of an upward dislocation of the hip.

Dr. C. H. Bradley read a paper on "The Use of Acetates and Citrates in the Treatment of Infections, with Special Reference to Pneumonia (A Primary Note)."

Dr. L. A. Nippert reported a case of hemoophthalmia which was treated with horse-serum. The patient, a little girl, died in two or three days.

Dr. D. O. Thomas reported a case of apparent epileptic spasms in a man of 58, which was cured, seemingly, by sargusine.

E. J. Huenekens, M. D., Secretary.

UPPER MISSISSIPPI SOCIETY

The quarterly meeting of the Society was held in April at Little Falls, with a good attendance and much interest.

Dr. Thomas McDavitt, of St. Paul, gave an eye clinic, and presented a number of interesting cases.

Dr. R. O. Beard, of the State University, gave an address on "The Present Relations of the Profession to the Public."

Dr. F. J. Sykora, of Brainerd, presented "Some Practical Points in Anesthesia."

Dr. R. W. Campbell, of Swanville, reported a case of "Acute Hepatitis and Ruptured Gall-Bladder of Traumatic Origin."

G. W. Lothian, M. D., Secretary.

THE RAMSEY COUNTY SOCIETY

The regular monthly meeting of the Society was held on May 27th, with thirty-seven members and three visitors present.

Dr. C. N. Hensel read a paper on "A Case of Chicken-pox With Scarlet Fever and Impetigo Contagiosa."

Dr. M. M. Ghent read a paper on "Gastric or Duodenal Ulcer," and the subject was discussed by Drs. E. M. Lundholm and R. O. Earl.

C. E. Smith, Jr., M. D., Secretary.

THE SOUTHWESTERN SOCIETY

The Society met at Windom on May 9th with twenty-one members and six visitors present.

The by-laws were amended, changing the meeting dates from July and January to May and November. The following physicians were elected to membership: Dr. H. Coulter, Mountain Lake; Dr. Edwin Patterson, Westbrook; Dr. H. DeBoer, Edgerton; Dr. W. J. Hewson, Adrian; Dr. E. W. Arnold, Bigelow.

A resolution endorsing the Owen bill, now before the United States Senate, was unanimously passed, and the Secretary was instructed to write our senators to that effect and ask their vote in favor of the bill.

The following papers were read: "The Surgical Treatment of Fistula in Ano," Dr. H. P. Ritchie, of St. Paul; "The Value of Blood-Examinations in Diagnosis," Dr. J. W. Andrews, of Mankato; "Obstetrical Suggestions," Dr. E. G. McKeown, of Edgerton; "Some Causes of Duodenal and Gastric Ulcer," Dr. G. R. Curran, of Mankato; Round-Table Talks on the following subjects: "Emergency Calls in Country Practice," Dr. E. A. Spalding; "How to Obtain Best Results in Elbow Fractures," Dr. F. M. Manson; "The Owen Bill," Dr. Emil King; "The Treatment of Nephritic Cases," Dr. F. R. Weiser; "Laboratory Methods as Aids in Diagnosis," Dr. G. D. Rice.

Each paper brought out an interesting discussion.

The meeting was one of the best ever held by the Society.

The next meeting will be held at Luverne on Thursday, November 14th.

Emil King, M. D., Secretary.

NEWS ITEMS

Dr. L. N. Klove, State University, '03, has moved to Lonsdale.

Dr. L. C. Ingram, of Zumbro Falls, has begun practice at Red Wing.

Dr. W. J. Austin has moved from Kimball, Minn., to Spokane, Wash.

Dr. Karl Dedolph, University of Minnesota, 1911, has located at Foreston.

Dr. C. A. Wicklund has moved from Hannaford, N. D., to Medina, N. D.

Dr. Charles J. Goodheart, State University, '11, has located at Finley, N. D.

The National Society of Anesthetists was organized at Atlantic City last month.

Dr. A. L. Kuske, who formerly practiced at Sanborn, has located in Hutchinson.

Dr. Walter Higgs has moved from Eveleth to Alliance, Neb., to enter general practice.

Dr. W. W. Wood, of Jamestown, N. D., has been doing post-graduate work in Chicago.

The training-school of St. Mary's Hospital, Rochester, graduated a class of fourteen nurses.

Dr. O. C. Breitenbach, of Frazee, has been elected president of the Commercial Club of that city.

Dr. Arthur Kahala, of Bemidji, was married last month to Miss Mamie Villeman, also of Bemidji.

Dr. Wallace N. Stearns, of the faculty of the N. D. State University, has gone to Berlin for special study.

Dr. A. S. Fleming, of Wheaton, has moved to Minneapolis and has offices at Reid Corner, 9th and Nicollet.

Dr. A. R. Schmidt, of Worthington, was married last month to Miss Gladys Humiston, of the same place.

Dr. Theodore Holton, who has been an interne in Asbury Hospital for the past year, has located in Wheaton.

Ellendale, N. D., is soon to have a hospital. The plan is to use the old court-house with extensive remodelling.

Dr. John A. Rott, of Eureka, S. D., has been sentenced to six years in the penitentiary for performing a criminal operation.

Decker County, Minn., has appropriated $500 for a visiting nurse to be selected by the Lake Park Antituberculosis Association.

Dr. P. C. Davison, of Clara City, has returned from Chicago, where he has been doing eye, ear, nose, and throat post-graduate work.

As a result of the University Extension work, the citizens of Windom have asked the school board of that city to employ a visiting nurse.

Dr. George A. Geist, a recent graduate of the State University, has been appointed assistant in the laboratory of the State Board of Health.

Dr. Paul Kelley, who has finished a year's interneship at the County and City Hospital, St. Paul, has entered general practice in that city.

Dr. Robert D. Mussy, of Rochester, was married last month to Miss Madge Ayres, of Little Rock, Ark. Dr. Mussy is a member of the Mayo staff.

Dr. H. W. F. Law, of Langdon, N. D., has sold his practice and hospital to Dr. Kamman, of Illinois, but will remain in Langdon until the end of the year.

The Sixth District Society of N. D. met last month at Bismarck. Papers were read by Dr. E. P. Quain, Lieutenant Smith, and Dr. T. D. M. MacLachlan.

Dr. A. C. Tingdale, of Minneapolis, has returned from Europe, where he spent two years in study, a year at Vienna and a year in Berlin and London.

The State Supreme court of Washington has handed down a decision that a faulty diagnosis followed by treatment that is harmless does not constitute malpractice.

Dr. B. S. Nickerson, of Glencoe, has decided to move to Mandan, N. D. He will be succeeded by Dr. M. W. Wheeler, a 1910 graduate of the University of Minnesota.

Dr. Charles O. Cooley, of Madelia, died on June 13th at the age of 62 years. Dr. Cooley had practiced in Madelia a third of a century, retiring a year ago on account of poor health.

Dr. Robert Clark, formerly of Plummer, died last month at the age of 34 years. Dr. Clark was a graduate of the University of Minnesota, class of '03. He had recently moved to Thief River Falls.

Dr. H. W. Hill, epidemiologist of the State Board of Health, has resigned his position after seven years' connection with the Board. Dr. Hill has accepted a position as director of the Institute of Public Health of London, Ontario.

At the June meeting of the Watertown (S. D.) District Society, papers were read as follows: "Hematuria: Its Causes and Treatment," by Dr. Paul Hendricksen; "The Treatment of Acute Mastoiditis," by Dr. L. G. Hill; and "Poor Office Practice," by Dr. J. S. Bates.

Dr. Fahey, Health Commissioner of Duluth, has asked the city council to appropriate $825 that infant-welfare stations may be opened in the west part of Duluth during July and August. Each station will be in charge of a nurse to give advice to mothers, and pure milk will be sold at a low price.

Gov. Vessey, of South Dakota, has appointed the following physicians members of the State Board of Medical Examiners: Dr. L. G. Hill, Watertown; Dr. F. W. Freyberg, Mitchell; Dr. Frank S. Howe, Deadwood; and Dr. W. E. Daniels, of Madison, the latter to succeed Dr. S. H. Graves, of Hurley.

"University Week" was celebrated at the University of North Dakota last week. An afternoon was given to the consideration of health problems. Dr. H. W. Hill, of the Minnesota State Board of Health, gave an address on "Fighting Contagion"; Miss Anna Lowry spoke on the work of the visiting nurse; and Prof. F. H. Bass spoke on "Municipal Public Works."

The sixth annual meeting of the Minneapolis, St. Paul & Sault Ste. Marie Railway Surgical Association will be held at the Hotel Spalding, Duluth, Minnesota, October 10th and 11th, instead of in August, as contemplated. An extensive and exhaustive symposium, composed of eight papers, taking up in detail all phases of cranial injuries, will be one of the features of this meeting. Another matter of unusual interest will be the oration on "Blood-Pressure and Its Relation to Surgical Shock," by Dr. Joseph C. Bloodgood, Associate Professor of Surgery, Johns Hopkins University, who will be the honor guest of the occasion,

The Hennepin County Medical Society held a special meeting last week to begin the preparations for the meeting of the American Medical Association in Minneapolis next year. The cost of this meeting to the local profession and the city will fall little short of $20,000, and the attendance will make it the most important gathering in Minnesota since the Republican national convention of a decade ago. Dr. Frank C. Todd was nominated for chairman of the Executive Committee, subject to the approval of the Board of Trustees of the A. M. A. This approval of course will be given, and the work will begin and continue at a characteristic Minneapolis pace.

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A physician's residence, with special office entrance, 10 rooms, almost new, strictly modern, located in best residence section of Minneapolis. Rent, $75.00. References required. Address W. M., care of this office.

AN INTERNESHIP OPEN

An interneship in one of the largest general hospitals in Minneapolis is vacant and will be filled at once. Well-recommended recent graduate of reputable medical school who can remain one year preferred, but young practitioner who desires to take hospital work for shorter period will be considered. Apply at once, giving full particulars and references. Address H. M., care of this office.

PRACTICE FOR SALE

Practice, $2,000.00 and upward, driving rig, and office furniture in beautiful village of over 1,000 twenty-five miles from Minneapolis. Price, $500 cash. Address K. D., care of this office.

PHYSICIAN WANTED

Wanted at once, Catholic physician for Minnesota town, established practice, nothing to buy, office equipped. Must be able to do some surgery; must have had a good interneship; must be of good appearance and must be a good mixer. Prefer young unmarried man. P. M.

PRACTICE FOR SALE

A $4,000 to $5,000 cash practice in a North Dakota town of 1,600 people, 40 miles from Fargo, is for sale, with office furniture and *x*-ray outfit, at a reasonable price if taken at once. Rich Scandinavian and German community. Address O. E., care of this office.

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A well-established $3,500 practice in a fine Minnesota town is offered for the price of office furniture. Automobile and residence optional. County-seat, 4,000 population; railway division, hospital, large territory, good roads, good pay. Must have cash and good recommendations. Address R. M., care of this office.

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ELECTRICITY IN THE HOME AND OFFICE

The presence of warm weather suggests to many that the time for the use of electricity is at hand. This is one of the half truths that is worth accepting, and it is better than no truth. The whole truth is, that electricity should wholly supplant gas because of the bad effects of gas upon the human organism.

Because of its real comforts and convenience electricity is coming into its own. The electric fan should be found, not only in every sick-room, but in every living-room and at times in every sleeping-room. The electric motor dispenses with much of the drudgery that has complicated the household-service problem; and the new forms of electric cooking appliances are working in the same line.

If you want to learn all about these things, write to the Minneapolis General Electric Co., Minneapolis.

RIVER PINES SANATORIUM

Great progress has recently been made in the care and treatment of the tuberculous, and no chapter in medical history is so bright as that now being written in the work along this line. The whole country is enlisted in the fight against the white plague; but, after all, the individual patient who comes to the physician must have attention and treatment according to his needs, and he can get treatment and care that promise most for him in a well-conducted sanatorium, such, for instance, the River Pines Sanatorium at Stevens Point, Wis.

Here, the patient finds the ideal climatic conditions and surrounding, with such treatment as the wide experience of specialists in this particular work has determined to be the best.

The medical work of this sanatorium is in the hands of Dr. Thos. H. Hay, while the surgical work is conducted by Dr. F. E. Walbridge, both men of prominence in their respective lines.

We commend the institution to our readers.

THE NEGLECTED THERAPY OF CONVALESCENCE

The physician of education and experience, who keeps in touch with the progress of medicine generally, is well informed as to the treatment of most of the "thousand and one" ills that he is called upon to combat. The diagnosis and treatment of acute conditions, as well as the successful management of the more chronic affections, are subjects which he is constantly investigating and studying. It so happens, however, that after the dangerous shoals of medical navigation have been successfully negotiated and when the crisis or danger point has been passed, the physician is all too liable to relax his vigilance and to allow the patient to convalesce without sufficient attention to the therapeutic details of this important period. While the feeding of the convalescent is of great importance, the medicotonic treatment is equally essential, in order to improve the appetite, tone the digestive, assimilative and eliminative functions generally and to hasten the time when the patient shall be once more "upon his feet." Among all of the general reconstituent and supportive measures in the therapy of convalescence, none is more essential than the reconstruction of a blood stream of vital integrity and sufficiency. Pepto-Mangan (Gude) is distinctly valuable in this special field, as it furnishes to the more or less devitalized blood the necessary materials (iron and manganese) in such form as to assure their prompt absorption and appropriation. One especial advantage of administering these hematinics in this form, is that digestive disturbance is avoided and constipation is not induced.

THE MILWAUKEE SANITARIUM

It is always with pleasure that we call the attention of our readers to The Milwaukee Sanitarium, of which Dr. Richard Dewey is the head physician. The sanitarium is beautifully located at Wauwatosa, Wis., with modern and commodious buildings, and a staff of men of the highest standing in the care and treatment of mental cases; in fact few men in the country are more favorably known in this line of work than Dr. Richard Dewey.

STERLING OUTFITS

The Castle Three Piece Sterilizing Outfit will be found illustrated and described on another page of this issue.

The Castle outfits are made in so many combinations (168) and to burn anything that gives heat, surely no one who uses a sterilizer can fail to find in the company's product exactly what he wants, nor can he find a sterilizer superior in any respect, nor one that is equal to the Castle in many respects. In short, the Castle is just the apparatus the physician or the surgeon needs.

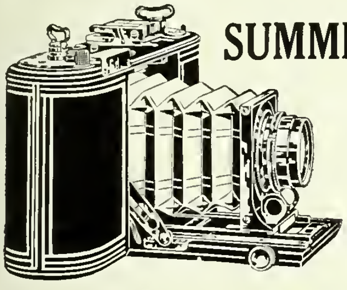
GLYCO-THYMOLINE IN SUMMER

Glyco-Thymoline is so nearly universally used by the nose and throat specialists that physicians may overlook its usefulness in his general practice. Its composition shows its value in summer complaints, whether used internally or by enema to correct hyperacidity or for prophylactic purposes when put into artificial foods or cow's milk to prevent disorders of an infant's stomach.

THE HAY-FEVER RIDDLE

Despite the many therapeutic advances of recent years, "what to do for the hay-fever patient" continues to be something of a puzzle. The long-sought specific still eludes us. Nevertheless, the malady is not quite the enigma that it once was. Medication, if still empiric, is not ineffective. The symptoms of the disorder can be controlled or minimized; relief, though temporary in many cases, may be obtained; and for these blessings the afflicted patient and the sympathetic physician may well be thankful.

For use in the treatment of hay fever there is, of course, a long line of so-called available medicaments. One dependable agent which comes naturally to mind in this connection is Adrenalin. Indeed, it is doubtful if any other single medicinal substance has been so largely and successfully employed in the treatment of vasamotor rhinitis. As adapted to the needs of the hay-fever sufferer the product is available in a number of convenient forms, as Adrenalin Chloride Solution, Adrenalin Inhalant, Anesthone Cream, Anesthone Inhalant, Anesthone Tape, etc. The various solutions are used in spraying the nares and pharynx, the cream for snuffing into the nostrils, the tape for packing the nostrils. All cases of hay fever, of course, are not amenable to the same form of treatment. It is a logical presumption, however, that a vast majority of them ought to yield to one or more of the preparations above referred to. The Adrenalin products, as is well known to most physicians, are manufactured by Parke, Davis & Co., who will doubtless be glad to send literature regarding them to any practitioner. Requests for printed matter may be addressed to the company at its main offices and laboratories in Detroit, Mich.



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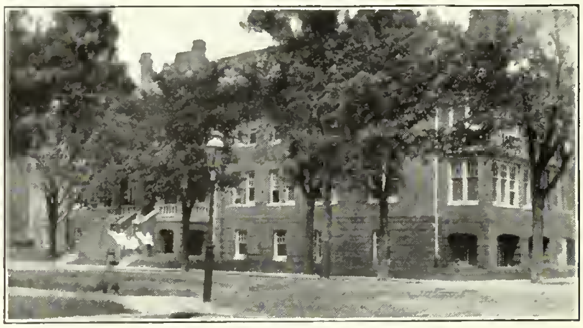

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SYMPOSIUM ON FRACTURES

THE X-RAY IN THE DIAGNOSIS OF FRACTURES*

By W. S. FULLERTON, M. D.
ST. PAUL

In taking up this division of the symposium it is not with the expectation of adding anything new that I approach the subject, but with the desire to impress more deeply upon the minds of those who have to deal with fractures, the importance of the information to be gained from a properly taken radiograph of the lesion.

A great deal has been written and said in the past ten years about the errors of the *x*-ray. I am fully convinced that the *x*-ray makes no errors, *per se*, but transmits faithfully to the sensitized plate a picture of the parts traversed by it according to the incidence, permeability of tissues, and other physical conditions present in the individual case. The errors therefore which give false conceptions of the lesion must be attributed to faulty technic in orientation, operation of apparatus, development of plates, and careless or ignorant interpretation. The opposite of all this, —correct posing, proper handling of apparatus and plates, control exposures, consisting of several poses of the part, in the same and in different planes, and of the corresponding sound parts in exactly the same positions, and an educated interpretation, which involves among other things an intimate knowledge of the *x*-ray picture of the normal,—gives definite, correct, and reliable knowledge of existing lesions.

There are some men in the ranks of medicine and surgery who, even at this day, either through ignorance or to excuse themselves for bad results exposed by a radiograph, harp upon the old idea of "shadow picture," exaggeration, and distortion. It is time that this ghost was laid. The radiograph is no more a shadow picture than is the camera picture of ordinary photography. The one is a picture impressed on the sensitized plate by direct transmitted light; the other, an imprint by reflected light. The latter deals only with externals; the former gives you a picture of the intimate structure of parts, and is not a mere silhouette, as the term *shadow* implies.

The necessary exaggeration of the radiograph is an exaggeration of all the parts. Relations are undisturbed. The factors of distance of focal point on target from the plate, the distance of the object taken from the plate, the angle of incidence, are all capable of fairly exact measurement. Taking these factors with the image on the developed plate as a base line, a simple geometrical process and mathematical calculation reduce your exaggeration to terms of exactness within a very narrow margin of error. We are all familiar with the ludicrous distortions of subjects of which the camera carelessly used is capable, yet no one thinks of questioning the evidence of the photograph in general on this account. The same acceptance should be accorded to the radiograph properly taken.

The surgeon who assumes to treat complicated fractures without the evidence of the radiograph, where it is attainable, is taking an unwarranted responsibility and is guilty of malpractice, and if his results are not the best possible he has paved the way for a successful suit for damages against him. Possibly the surgical stand-patters who belittle the radiograph will require this kind of a lesson.

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*Read at the 43d annual meeting of the Minnesota State Medical Association at St. Paul, Oct. 5 and 6, 1911.

It is a needless occupation of time to try to point out here the localities of the body where the diagnostic use of the *x*-ray is most valuable. In general terms, let it suffice to say that wherever there is doubt which may be removed by its use it should be used. The prints and plates exhibited to you during this symposium will emphasize its importance more strongly than further words of mine, and they are earnestly recommended to your attention.

I would ask you particularly to consider the elbow series especially Nos. 3, 4, 5, and 7. No. 4 shows what was accomplished by the forced acute angle position and raises the question whether or not more perfect reduction could not have been brought about by the use of a fulcrum-pad in the bend of the elbow. No. 5 shows an important lesion perhaps impossible of discovery without the *x*-ray. No. 7 shows the inefficiency of the original treatment, the lower end of the splint showing above the line of fracture which it was intended to support.

Passing on to other fractures, No. 9 shows a fracture of the lower end of the radius which ordinarily would be overlooked and treated as a sprained wrist, probably without any difference in results. No. 11 reveals the existence of a somewhat rare lesion; No. 12, a fracture which existed where the attending physician was excusable in thinking the contrary.

No. 13, A, B, and C, is interesting as showing the immediate results and after-results of proper treatment. The radiograph played a very important part in this case. No. 15 shows a fracture of the greater tuberosity of the humerus, a diagnosis not liable to be made without the *x*-ray. No. 25 is analogous to this, showing a fracture of the great trochanter. Nos. 28, 29, and 30 are fractures of the acetabulum, all taken months after treatment was discontinued and two of them, Nos. 29 and 30, had been diagnosed and treated as fractures of the neck.

FRACTURE OF THE ELBOW[*]

By Owen W. Parker, M. D.

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Fracture of the elbow in adults in our injury work has not been common. An examination of the records of the last 4,600 injuries among adult males in the industrial occupations, principally iron-mining and lumbering, treated by us at the Shipman Hospital, shows the following fractures:

Patella	1
Pelvis	2
Scapula	3
Teeth	3
Costal arch	4
Lower jaw	4
Radius and ulna	4
Nose	5
Humerus	7
Ulna	7
Radius	9
Spine	12
Clavicle	12
Tibia	13
Femur	20

(Six of femur fractures were fractures of the neck and two were double.)

Fibula	19
Skull	24
Ribs	27
Foot	35
Hand	38
Tibia and fibula	75

Of these 324 fractures only 7 involved the elbow. We have found these fractures much more common among children. In adults the bones are stronger than the ligaments, and a dislocation is more apt to be produced, while in children the opposite conditions prevail. Ashurst reports 56 cases of fracture of the elbow, of which 54 were in children.

Fracture of the elbow is a subject of interest and of apprehension to the surgeon: of interest, because of the great functional importance of the elbow-joint; of apprehension, because of the uncertainty of obtaining good functional use of the joint following fracture, as well as because of the antaomical difficulties to be met and overcome.

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[*] Read at the 43d annual meeting of the Minnesota State Medical Association at St. Paul, Oct. 5 and 6, 1911.

That the older teachers and surgeons gave a rather gloomy prognosis is evidenced by their teachings and writings. Their experience was before the use of *x*-rays for control and correction of diagnosis. They anticipated a stiff joint and believed in early forcible manipulations to prevent ankylosis. Even surgeons of today, with large experience in elbow-fracture, have not claimed the best results. Cotton, in a study of 32 cases of fracture of the lower end of the humerus involving the joint, found only 5 with a perfect result. Scudder says: "At the time of the first examination of the elbow, the nature of the injury and its seriousness should be explained carefully to the patient or his friends. A guarded outlook should be expressed, particularly with reference to the function of the joint. Some limitation of motion may exist after all that is possible has been done. A study of the writings and teachings of various teachers of various nationalities shows that they have generally expressed the opinion that deformity and interference with function are to be anticipated." Ashurst, from a careful study of 56 cases of fracture of the lower end of the humerus involving the elbow-joint, concludes that by treating them in the position of hyperflexion a more favorable prognosis is afforded than has usually been given in these cases.

To limit the scope of this subject, only simple fractures of the lower end of the humerus will be considered since they constitute the large majority of fractures involving the elbow-joint and are the ones in which we are most apt to get stiffness and the ones in which the position of hyperflexion can be applied most satisfactorily in treatment.

A consideration of the anatomy of the lower end of the humerus is of interest. It is a cylindrical bone flattening out at the lower end anteroposteriorly, and broadening laterally and terminating in the condyles. We may consider the condyles as a cylinder attached transversely and distinctly anterior to the shaft of the humerus, by which means flexion is increased and extension retarded. The articular surface is also not at right angles to the shaft of the humerus, but is oblique, forming an angle of 85 degrees, the lowermost part of the articular surface being on the inside. This causes a deviation of the forearm away from the body, forming the so-called carrying angle. An equal part of the carrying angle is also formed by an obliquity of the combined articular surface of the ulna and radius. The equal obliquity of these articulating surfaces forming the carrying angle, allows the forearm to be superimposed on the arm in hyperflexion with their axes in exactly the same plane. If this were not the anatomical arrangement and we still possessed the carrying angle, the forearm would cross the arm in hyperflexion. This actually occurs in these fractures uniting in the position of the so-called gun-stock deformity.

Flexion of the elbow varies from 14 to 40 degrees, the average being about 31. Extension varies from 170 to 210 degrees, the average being about 187, or 7 degrees beyond a straight line. This 7 degrees hyperextension makes the arm much more stable when fully extended. The position of greatest stability, however, is that of hyperflexion. In this position the action of the forearm as a lever is abolished to the greatest possible extent, and rotation of the humerus by means of the forearm as a lever is reduced to the least possible since the axes of the ulna and radius coincide in this position.

On account of the irregularity of the lower end of the humerus a large variety of fractures are encountered. Following is the classification, as given by Ashurst, there are—

1. Supracondylar.
2. Diacondylar or transversely through the condyles.
3. External condyle. These three are the most common varieties.
4. Separation entire lower epiphysis.
5. Internal condyle.
6. Intercondylar.
7. Trochlea.
8. Epitrochlea.
9. Epicondyle.
10. Capitellum.

All injuries around the elbow should be examined most carefully. The history of the injury is important. Careful inspection should be made, with the patient stripped to the waist so that the two arms may be compared. Note the position of the elbow (flexed or extended), the forearm (pronated or supinated), and the presence or absence of carrying angle; the presence or absence of swelling, abrasions, or contusions and ecchymosis.

It is better to begin palpation by going from the known to the unknown. It will be well therefore to begin palpation by running the finger-tips along the subcutaneous border of the ulna. This will lead to the tip of the olecranon, a landmark directly at the elbow and easily distinguished from either condyle when located in this way. The radius can then be followed up to its head, and the external condyle above it identified. The internal condyle can usually be found without trouble, even in the greatly swollen elbow.

The three bony landmarks of the elbow being located, their relation to one another can be studied. The humerus may then be carefully palpated, from above downward as far as possible. In this way we are much more sure of our bony points than we are if we commence examination directly at the elbow.

Tests for paralysis or anesthesia from injury of the nerves around the elbow, especially ulnar and median distribution for sensation and radial (musculospiral) for motion, should be made.

Examine for crepitus by grasping the humerus firmly in one hand and the forearm in the other. Gentle motions of flexion and extension may then be made. Then flex the forearm to a right angle and thrust it backward and pull forward on the humerus. If this manipulation does not produce crepitus, the shaft of the humerus should be grasped tightly and an attempt made to rotate the lower fragment on the upper, using the bent forearm as a lever.

It may be thought that this tedious examination and these manipulations are not only not necessary but undesirable. That they are necessary is demonstrated from the fact that even with the most painstaking examination some fractures are overlooked, and with less careful examination more fractures will be overlooked. That the manipulations are, instead, desirable is plain when it is shown that an impacted fracture with deformity is released in this way and reduction made more easy. Damage can, of course, be done by rough handling, but it is not necessary to be rough in carrying out these manipulations.

After the routine examination has been made, the surgeon, if possible, should have at least two radiographic plates taken, one anteroposterior and the other lateral. Routine use of the *x*-rays is a positive aid in diagnosis.

In the treatment of these fractures the position in which the elbow should be placed has been the subject of much discussion. There are three positions, namely:

1. At right angles.
2. In extension.
3. In acute flexion of Jones, or, as termed by Ashurst, hyperflexion, meaning to flex the arm as far as possible, usually to 30 degrees and sometimes 20.

Whatever method is followed, the most important point in the treatment is the accurate reduction of the fragments to overcome the two most frequent displacements, namely, overriding and angular displacement of the fragments, and then selecting the position which best maintains the fragments in correct apposition.

The position of hyperflexion, as so strongly advocated by Ashurst, is the position that we favor for all fractures of the lower end of the humerus involving the joint. If the joint is so swollen that hyperflexion is impossible with safety to the radial pulse, we flex as far as we can and carry out hyperflexion later.

In supracondylar and diacondylar fractures many surgeons prefer the right-angle position. Cotton favors this position rather than acute flexion or hyperflexion. Ashurst reports 21 cases of this fracture treated in hyperflexion with 90 per cent perfect results, which is a very high percentage compared to most reports. The position seems anatomically the best for these fractures, since the lower fragment is usually kept flexed on the forearm by the muscles attaching to the epicondyles, and in order to overcome this action the forearm must be flexed at least to a right-angle. However, in this position the triceps tends to pull the olecranon backward and with it the lower fragment since it acts in a plane posterior to the plane of the humerus. When, however, we hyperflex the elbow the plane of attachment of the triceps to the olecranon is anterior to the plane of the humerus, and the tendency to the backward displacement of the fragment is overcome. Besides, the triceps in its tense condition in this position tends to pull and hold the lower fragment in exact position.

In fracture of the external condyle the carrying angle is lost. The fragment drops downward and forward, both by muscular action and gravity. This displacement is best overcome by adducting the arm and bringing the elbow in the position of hyperflexion. The tense triceps then holds it in position posteriorly while the head of the radius prevents it from forward displacement.

In fractures of the internal condyle we have to guard against ascent of the fragment and consequent loss of the carrying angle, for, if the fragment ascends, the obliquity of the articulating surface will be lost and with it the carrying angle. The ascent of the fragment is caused by the weight of the forearm abducting by gravity and pushing the unattached fragment upward. The fragment is also flexed and rotated by the muscles attached to it since it is now loose from the shaft of the humerus. Hyperflexion overcomes this muscular action and also overcomes ascent of the fragment since the weight of the forearm now acts against its ascent. In this, as in the other fractures considered, the tense triceps acts as the best splint surrounding the internal condyle behind and below, and, by its insertion into the ulna and by its fibrous expansion to the external condyle and forearm, supports it, not only posteriorly, but also laterally and below.

In epiphyseal separations, fracture of the epicondyle, trochlea, epitrochlea, and capitellum, the position of hyperflexion or right-angle flexion is sufficient. In all these fractures hyperflexion seems to be the position in which there is least pain. I recall one case of ours with dislocation of the ulna and radius and transverse or diacondylar fracture of the humerus with forward displacement of the lower fragment into the bend of the elbow, a very unusual occurrence, in which there was great pain and swelling. On reduction in the hyperflexed position, the pain immediately ceased, to our surprise.

In intercondylar fractures hyperflexion does not seem to answer so well, for the action of the triceps in this position tends to drive the shaft of the humerus still farther between the condyles. In a typical "T" fracture, with the shaft fractured transversely, it might work all right. In these fractures any position which best holds the fragments in position should be used. Operative measures are often necessary, and a guarded prognosis should be given.

According to Pedro Chutro, of Buenos Aires, the position of hyperflexion was first recommended in 1873 by Dauvergne. He urged flexion so acute that the hand touched the shoulder on the injured side. In this position he considered that the bones of the forearm acted as an anterior splint, and that none other was necessary. About fifteen years ago the position began to be called the "Jones position" after Mr. Jones, of Liverpool, who employed it after excisions of the elbow-joint in tuberculous disease. H. L. Smith, of the Boston City Hospital, was an early advocate of the position. His paper first appeared in 1894. He thoroughly demonstrated the value of the position.

Hyperflexion is maintained either by means of adhesive straps, as described by Scudder, or by means of a simple roller-bandage, as used by Ashurst, without splints of any kind. Ashurst does not fasten the arm to the body at all, but hangs it from the neck by a bandage from the wrist and allows the arm to wag in and out freely from the body.

The fracture is of course first reduced by combined hyperextension, manipulation, and traction, as indicated, and with the humerus in position the forearm is flexed on the arm in exactly the sagittal plane. The forearm is held exactly in this position regardless of pronation or supination, and the dressing applied. On the third or fourth day after the injury the bandage should be cut, the position of hyperflexion being carefully maintained, and the hand, forearm, axilla, and elbow are carefully washed with alcohol. Then hyperflexion is reduced enough to allow the removal of the powdered pad of gauze in the bend of the elbow, and replacing it. Hyperflexion is then reproduced and the arm bandaged as before. The elbow should be dressed about three or four times a week, and hyperflexion maintained two weeks. In four weeks extension should reach 90 degrees, or a right-angle, and the arm may be carried in a triangular sling, preventing further extension for a week longer. At the end of five or six weeks we may usually remove all dressings and encourage use of the arm. Some patients will have complete extension very early, while others will not regain it for six months or longer.

There is a difference of opinion as to the use of passive motion and forcible manipulations. The older surgeons believed forcible manipulations were necessary to prevent stiffness. Many surgeons today believe early forcible manipulations are necessary to prevent ankylosis. I believe the best teaching today, however, is not to enforce passive motion until union is firm, in the third or fourth week, and then it should be gentle. Passive motion that causes pain may do harm. Stimson says: "If you leave the arm alone you save your time and the patient's, and he gets well quite as promptly." If one uses the right-angle position probably one of the best splints is the anterior right angular splint of the Bolles type. This splint has an obliquity downward and inward on the forearm. It is padded and set close to the bend of the elbow and fastened to the upper arm by adhesive straps, then while forward traction is made on the forearm to overcome and prevent backward displacement, the straps are applied to the forearm. If there is a tendency to internal displacement an internal co-aptation-splint should be applied. Cotton speaks very favorably of this position, as does also Eisendrath. It is probably the position most generally used. In our work we have used both the right-angle and hyperflexion. More lately we have used hyperflexion. We have been pleased with the position from the fact that complete flexion is maintained. This function of the joint is most valuable. Our experience with the right-angle position has been that complete flexion has not been so apt to be maintained and is sometimes never regained to its former extent.

With the position of extension in these fractures we have had no experience. We have not used Bardenhauer's special extension methods. It seems complicated and a little difficult in application, besides at times necessitating the patient fracture. It is doubtful if the results obtained remaining in bed, which is a bad feature in any by this method are any better than by the simpler methods, if as great care is shown in the details of the simpler methods as must be shown in the Bardenhauer method if it is successful.

Before the use of the position of hyperflexion in the treatment of these fractures of the elbow, flexion was most easily lost, and was regained with the greatest difficulty. By the use of hyperflexion, flexion is preserved, and the more easily acquired extension is regained, it in itself not being near so disabling as loss of flexion.

Ankylosis is the most disabling result of a fracture of the lower end of the humerus. Then come all grades of motion just short of ankylosis up to only slight loss of flexion and extension. There is comparatively little disability if there is a fair range of motion, say from 50 to 150 degrees.

Deformity in itself is not usually disabling, but a marked degree of gun-stock deformity with cubitus varus usually weakens the joint, with loss of function, besides making the arm conspicuous. Slight deformity, especially cubitus valgus, does not interfere with the function of the joint so long as motion is preserved and is not conspicuous.

A perfect result should mean full range of motion, both flexion and extension, and the preservation of the carrying angle.

The position of hyperflexion for these fractures should not be considered in itself a panacea, but it is undoubtedly the position which by anatomical factors best maintains the fragments in position after reduction has been accomplished, and the routine employment of which will produce the most satisfactory results.

FRACTURES OF THE WRIST*

By A. E. Wilcox, M. D.
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Success in the treatment of fractures of the wrist depends more upon an accurate diagnosis than upon any other factor.

In a series of 2,500 fractures of the extremities, verified by radiographs, which have been reported by Dr. G. G. Ross and M. I. Wilbert, of the German Hospital of Philadelphia, a splendid idea is obtained as to the frequency with which these injuries occur. Of the total number of 2,500 fractures there occurred 1,596, or a little over 60 per cent in the upper extremity, and 904, or a little less than 40 per cent, in the lower extremity. Analysis of the upper group shows a total of 622, or about 39 per cent of the fractures, occurred in the region of the wrist. The most common fracture in this region is fracture of the radius alone, this bone suffering dissolution 254 times in the series above. The next most common pathological condition is fracture of the ulna alone 27 times. Then follow, in smaller percentages, various combinations, such as carpus, radius and ulna, carpus and ulna, carpus and metacarpus, phalanges, metacarpus and carpus, etc.

The *x*-ray is largely responsible for our advances in the diagnosis of these fractures, and it is no wonder that, prior to its development, most injuries of the wrist without deformity were diagnosed "sprain," while those which presented mal-position were nearly all called Colles'. The term "sprain" has almost become a tradion; the term "Colles' fracture" is still too frequently used and "covers a multitude of sins."

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* Read at the 43d annual meeting of the Minnesota State Medical Association at St. Paul, Oct. 5 and 6, 1911.

It is a common saying among the laity that a "sprain is worse than a break." These cases are really fractures which have not been diagnosed and treated properly, and the convalescent period is long and painful.

Etiology.—These injuries are usually received by falling upon the heel of the hand or the base of the palm, the hand being over-extended, sometimes adducted or abducted. The force may be spent in the carpal bones, they alone suffering, or may be transmitted to the ulna or radius, fracture resulting. Falls on the back of the hand may cause fracture of the radius with the same deformity resulting as that caused by contact with the palmar surface. In this instance, the hand being over-flexed, the metacarpal bones force the scaphoid against the lower end of the radius in much the same direction as when the blow is received upon the heel of the hand.

The carpus suffers, as a rule, from direct violence; the radius and ulna in this region, from indirect force.

With the exception of compound fractures and those due to crushing violence, little injury to the soft parts, blood-vessels, or nerves occurs, only a few cases having been reported.

The most common fracture is that of the lower end of the radius, the bone breaking here because it is the weakest point between the wrist and shoulder (Ely: *Jour. of the A. M. A.*, June 27, 1908), the ulnar side suffering less than the outer on account of its close attachment to the ulna, the posterior surface suffering more than the anterior because there is less resisting material in this side of the bone.

The line of fracture may be high up, occurring alone or in conjunction with a break in the ulna. Lower down in the first three-fourths of an inch to an inch of the articulating surface we have the fracture bearing Colles' name.

The line of fracture may be transverse, oblique, angular, multiple, split, a mere crack in the epiphysis, or separation of the same. Any one of these fractures may or may not be accompanied by fracture of the styloid of the ulna.

As will be mentioned again, it is this low fracture of the radius which is not infrequently accompanied by fracture of the carpus. In most instances the scaphoid is the bone involved.

Separation of the radial epiphysis is common and may or may not be accompanied by injury of the ulna.

Either lip of the lower articulating surface of the radius or its styloid process may be involved alone and independently of the other. The ulna may suffer fracture of the shaft with fracture of the radius or alone, although the latter instance is not common. The common injury to this bone is the dislodgment of the styloid process independently, but, more frequently, with involvement of the radius. Tearing or dislodgment of the inter-articulating fibro-cartilage may accompany injury to the ulna.

Fractures of the carpal bones have never been satisfactorily diagnosed until the advent of the *x*-ray. Now a great many cases, in fact the great majority of severe sprains, are proven to be fractures or involvement of these bones. In Ross and Wilbert's series, above quoted, there were 90 cases where the carpal bones were fractured alone, 36 cases of fracture in connection with fracture of the radius, and a few in combination with fractures of other bones.

Fracture of the scaphoid is the most common. However, the os magnum and semilunar have suffered similar injury.

In the examination of a number of chronic wrists, Ross and Wilbert found not a few well-defined fractures of the carpal bones, this being the initial lesion which had been diagnosed rheumatism, sprain, etc., and treated as such. "One case, in which the wrist had been sprained nearly 25 years before, still showed the trouble to have been a fracture of the scaphoid."

Diagnosis.—The history is most important in the chronic cases. Patients forget slight injuries and short falls. In fact, without a history, fractures of the carpal bones would not even be suspected.

Pain is variable. Fracture of the carpus may give rise to a slight or severe continued pain, the latter, if the bones are comminuted or fragments displaced. If, after a slight injury, pain is persistent, localized, and accompanied by local swelling, one will be justified in suspecting fracture of the carpus. If this diagnosis cannot be verified with the *x*-ray, put the wrist at rest, if there is no deformity, and treat as a fracture. In other fractures near the wrist, the pain may be so severe as to cause nausea and vomiting or may be the other extreme and elicited only upon pressure. Briefly, pain has little diagnostic value.

Swelling here, as in all fractures, depends upon the length of time and amount of extravasation.

Crepitus is often absent in fractures of the lower end of the radius on account of locking together of the roughened ends of the fragments or actual impaction. Crepitus is also difficult to obtain in fracture of the ulna styloid, or carpal fractures, but apparent, of course, in fractures of the shafts of the long bones unless they be of the green-stick variety.

Interference of functions depends upon the amount of deformity, pain, and the individual. Frequently in Colles' fracture with little displacement I have had patients remark that "the bone was not broken because they could move the wrist-joint."

Deformity is important. Colles' fracture presents a variable amount of deformity, depending upon the degree of rotation of the lower fragment, the direction of rotation, and the direction of the line of fracture. In the simple transverse types or separation of the epiphysis, little deformity may be present. In the severe comminuted type great deformity will be the result. Between these two extremes we have the typical silver-fork deformity, caused by backward rotation of the lower fragment of the radius and forward displacement of the head of the ulna, abduction depending upon the amount of external rotation of the lower fragment of the radius and also the amount of injury to the external ligaments or styloid of the ulna. On account of this backward rotation of the lower fragment of the radius and depression of the head of the ulna, a marked depression is noted over the head of the ulna posteriorly, while the displaced lower end of the upper fragment of the radius obliterates the radial curve. The relation of the radial to the ulnar styloid is disturbed, the former being on a higher level than normal, reaching the same plane as that of the ulnar or even above it. There is usually an increase and deepening of the wrinkles at the base of the thumb, but this is not important.

I use the *x*-ray whenever it is possible to verify or correct my diagnosis, but I do not hesitate to treat these fractures thoroughly before the radiograph is made.

In the treatment of these injuries an anatomical knowledge of the bony landmarks of the wrist and an anesthetic are most essential. It is difficult to replace fragments which are held in abnormal position by irritable muscles, to say nothing of impaction. Primary anesthesia by ether or gas is all that is necessary, and frequently the clinical diagnosis can be made only under an anesthetic.

It makes very little difference what method one uses to replace deformity. The point is to really reduce it. Rough, vigorous pulling and jerking should be avoided, so as to not injure blood-vessels and nerves. Hyper-extension and flexion with direct and counter-pressure, moulding the fragments, and correcting the abduction or adduction will suffice in practically all fractures of the wrist. In the majority of cases, except in those of extreme abduction due to comminution, the deformity once reduced seldom recurs.

Retentive apparatus may be made of wood, plaster, or metal; or one of the various splints, such as the old-fashioned Bond splint, may be used. I prefer the anterior and posterior wooden splint because it can be made to fit the individual case better than the ready-made splint, which never really fits the contour of the particular arm. These splints are best padded with thick felt or sheet wadding, a notch being cut out of the posterior so as to not interfere with the ulnar head and in addition, three separate pads, one placed so as to preserve the radial curve, one to support the drooping head of the ulna, and a third, if necessary, to hold the rotating head of the lower fragment of the radius downward. These splints should be held in place by adhesive strips, which come in contact with the skin of the forearm so that the splints will not rotate.

The arm should be inspected daily for the first three or four days, the dressings carefully removed, and the arm bathed with alcohol once or twice during this time; then, if the position is satisfactory, the dressings need not be changed oftener than two or three days for the next two weeks, at the end of which time one of the splints may be removed or entirely done away with and some simpler dressings applied. Passive motion and massage are then in order.

Complications and permanent deformities cannot be considered in this paper for want of time, but a word regarding thickening and stiffness. A mild degree of synovitis or tenosynovitis may follow wrist-fractures, particularly those of the carpus, but symptoms are largely due to non-use of the muscles and joint. Adhesions seldom form, and the disability on this account rapidly disappears if the patient will assist in conscientiously using the arm. Permanent widening and thickening of the joint and displacement of the ulna head usually follows badly comminuted fractures of the radius and is sometimes impossible to avoid, it being next to impossible to mould the fragments into place, or restore the support of the radiocarpal articulation.

I have purposely avoided using the terms Barton's, Smith's, Chauffer's, reversed Colles' fractures, etc., as these terms are confusing and help us little in the diagnosis or treatment. I have excluded compound fractures on account of lack of time and, for the same reason, have omitted differential diagnosis of many of these fractures and luxations. However, from what has been presented, I trust that when one considers the great amount of pathology which occurs in the region of the wrist as the result of trauma, one will be impressed with the value of an accurate diagnosis.

FRACTURE OF THE PATELLA*

By W. E. Harwood, M. D.

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A short anatomical description of the patella and its relation to the knee-joint is necessary before describing the fractures of the former.

The patella, or knee-pan, becomes apparent about the age of three, and its ossification is completed at the age of fifteen. It is a flattened, triangular sesamoid bone placed with its apex downward in front of the knee, and is covered by the expansion from the tendon of the extensor quadriceps muscle, which becomes continuous with the superficial fibers of the ligamentum patellæ below. It is separated from the skin by a large bursa, which is formed of two sacs,—a small one between the skin and the superficial fascia near the lower margin of the patella, and another between the superficial fascia and the expansion of the deep fascia. The latter is the larger, extending over the upper part of the ligamentum patellæ. These prepatellar bursæ generally communicate. There is a smaller bursa between the ligamentum patellæ and the upper part of the tuberosity of the tibia; also a deep one beneath the quadriceps, which frequently communicates with the knee-joint. The posterior surface of the ligamentum patellæ is separated from the knee-joint by a mass of adipose tissue, while the posterior surface of the patella is covered by articular cartilage, except at the lower margin. Here it is rough for the attachment of the patellar ligament. The lateral margins of the quadriceps are continuous with the aponeurosis derived from the vasti muscles. The fascia lata is attached below to the condyles of the femur, the sides of the patella, the tuberosities of the tibia, the head of the fibula, and the deep fascia of the leg in the popliteal space. The capsular ligament of the knee is incomplete as a capsule and does not possess the function of a ligament. It consists of expansions from the tendons of the muscles which pass on each side of the joint blended with the investing femoral fascia and with the other ligaments of the outer series.

Fractures of the patella occur most frequently between the ages of 30 and 50, rarely before 20, and constitute about 1.4 per cent of all fractures. They are usually caused by a fall, a blow, or external force of some kind. Muscular force, according to von Bergman, has been over-estimated. When the leg is flexed, as it usually is in a fall, muscular traction can only draw the patella still more closely upon the femur. Hamilton taught, however, that muscular action was efficient in causing fractures of the patella, for some occurred while the patient was standing.

Fractures of the patella are divided into simple or subcutaneous, and compound, and always open into the joint cavity except in fractures at the lower end. According to the type of the fracture line they may be transverse, longitudinal, oblique, or comminuted. The simple transverse type constitutes about 80 per cent of all the fractures, whereas the longitudinal are very rare. In the former type, the line of fracture is usually below the middle half of the patella and runs slightly oblique from above and without downwards and inwards. Compound fractures may be T- or Y-shaped. In the transverse fracture, the bone is broken, and usually the fascia over the patella is torn, while the capsule and tendinous fibers of the vastus internus and the prolongations of the fascia on the outer side may be partially or completely torn. The prepatellar bursa is contused and may be filled with blood as is the case with the joint cavity itself. The line of fracture does not always correspond with the tear in the aponeurosis. Thus the pathological condition is a fracture with its attending softening and also that of an arthritis.

The diagnosis of a fracture is usually easily made. The patient generally hears and feels

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* Read at the 43d annual meeting of the Minnesota State Medical Association at St. Paul, Oct. 5 and 6, 1911.

the snap when the bone breaks, and thereupon he is unable to extend the leg or to raise the heel from the floor. Upon examination displacement is evident and crepitation can be elicited. Tillaux claims that an effusion of blood in the prepatellar bursa may give rise to crepitation, and the crepitus may cause a sensation exactly like that of the separation of the fragments. It may be entirely absent, due to fibrous tissue or blood-clots between the fragments. Hemorrhage into the joint is constant, causing marked distension. An incomplete or subligamentous fracture is at times difficult to diagnose without the aid of the *x*-ray, for the classical symptoms are absent.

The prognosis depends upon the age of the patient, the extent of the tear of the capsule, and the degree of diastasis, but more especially upon the treatment. Simple fracture without displacement, but more especially the longitudinal type, may be followed by bony union and restoration of function. Hamilton states in his history of 127 fractures: "I do not know positively in any case the union was by bone." A perfect functional result may follow even though the union is fibrous and the fragments separated three or four inches. Non-union is not due to a lack of nourishment, but upon the contractions of the extensors, the intra-articular hemorrhage, and the interposition of periosteal tabs. If the treatment is inadequate to the conditions present, the upper fragments may become attached to the femur, a pseudarthrosis may develop, or the quadriceps may atrophy. As a general statement, we may say that the greater the degree of separation, the greater the movement of the fragments; the longer the ligamentous union, the more is the usefulness of the limb impaired.

In looking up the literature on fractures of the patella, one is impressed with the diversity of opinion as to their treatment. Statistics according to different authors are at such variance that it seems possible to find an authority for any method one may use, so long as the empirical rules of surgery are not transgressed. The rational treatment must be based upon our knowledge of the anatomy and the pathological condition of the parts affected and our ability to recognize the latter. The end-result should be a normal movable knee-joint and a patella the least liable to refracture. We know that this bone does refracture more frequently than any other, and when fracture does occur the disability is greater, due to more extensive laceration of the expansion of the quadriceps, than after the original fracture. The main point of variance is, whether each and every fracture of the patella should be operated upon or not. The operative method is not very new, for Severine used the open method three hundred years ago, but the first operation under true antiseptic conditions was performed by Lister in 1878. As late as 1890, Bull of New York gave as his opinion that all simple fractures should be treated on a conservative plan. The majority of the members of the French Société de Chirurgie and the London Medical Society at the same time were of the same opinion. In giving the treatment which was followed out by me in the following cases, I shall give the indications and reasons for the methods pursued.

Case 1.—Patient, male adult, aged 24, entered the hospital January 22, 1911.

While going down stairs the patient slipped and fell, striking his knee against an iron step. The injury was dressed immediately, adhesives being used about the knee, and a posterior splint for the entire leg. He was brought to the hospital in the evening. Examination showed a transverse, slightly comminuted fracture of the lower half of the patella. The line of fracture ran from without downward and inward, terminating close to the inner border. Here the line ran into a small depression, due to a slight comminution of the external layer of the bone. The patellar bursa and also the joint-cavity were moderately distended. The fragments were in apposition, except about one-fourth of an inch at the inner border, due to the comminution. Crepitation was elicited along the entire line of fracture.

Treatment.—The leg was put in a posterior moulded plaster cast and adhesive strips placed below and above the fragments, and also one transversely across the top. These strips were fastened to the posterior part of the cast. The leg was elevated and swung in a Hodgen's splint. Ice was applied over the joint, and the quadriceps was massaged gently every day. The patient made an excellent recovery, and at this date, August 16th, walks with a very slight limp and can flex the leg at right angles unaided. The line of union is firm with no apparent separation. The patella is movable, and the quadriceps but slightly atrophied. There is a slight depression at the point of comminution.

The following is the reason for this method of treatment: There was practically no diastasis of the fragments, the distension was not very marked, and there were no tabs between the fragments, as was evidenced by the well-defined crepitation. The patient was able to extend his leg and to lift it with some little assistance, and that within a few days after the accident. So it was evident that the capsule was intact or torn very little.

Case 2.—Patient, an adult, aged 40, entered the hospital March 18, 1903, stating that he fell on a sidewalk striking his right knee. Examination disclosed an extensive comminuted fracture of the patella with considerable effusion into the joint and the fragments separated about three-fourths of an inch. After treating the joint for the effusion for six days, the joint was opened and considerable serum, blood, and fragments of the bone were removed with forceps. The joint-cavity itself was not touched nor manipulated with the fingers, neither was it irritated. The fragments were drilled and approximated with chromicized catgut sutures, and the torn tissues were sutured with plain catgut. The joint was closed without drainage, and the skin sutured with silkworm gut. A posterior moulded splint was applied at once and the limb put to rest in a Hodgen's splint. Within fifty days after the operation the limb could be flexed to a right angle by the patient. Six months later he had perfect use of his knee.

An open operation was here decided upon on account of the great distension of the joint, which did not disappear with treatment, the great amount of separation of the fragments, and the absence of crepitation. Whenever such conditions exist an open operation is undoubtedly indicated, if thorough asepsis is possible. A local immunity may be established according to Murphy by injecting 2 to 5 per cent formalin in glycerine into the joint-cavity. Many would operate immediately before the physiological softening takes place, as is the case in all fractures, while others wait one or two weeks until the regenerative processes are well advanced with their lessened dangers of infection. In old persons or in individuals where a general anesthetic is contra-indicated, Richardson of Los Angeles has had excellent results by using spinal or local anesthesia. The subcutaneous methods, as advocated by surgeons, would not have remedied all the conditions present, as the fragments in the joint would have remained. The drilling of the fragments is not absolutely essential, especially if the rents in the capsule and aponeurosis are sutured with the approximation of the fragments. Equally as good results are reported when the fragments are not wired or sutured, besides the fate of the silver wire is not always satisfactory. Von Brun, examining twelve wired patellas, found only three with ideal healing. In four cases the wire worked into the joint, in some the wire was broken into pieces, while in others the wire was displaced and the parts were not firmly fastened together. He concluded that silk or catgut was at least as effectual as wire.

Case 3.—In February, 1893, patient, male adult, aged 46, presented himself at the hospital with a non-united fracture of the patella stating that the same had been fractured twice before and had been treated by the application of splints both times. Examination revealed an old fracture of the patella with two inches of separation of the fragments. At operation it was impossible to approximate the fragments, so the quadriceps tendon was cut, according to the method advocated at that time by von Bergman, but this was not sufficient to bring them together. The lower fragment was then mobilized by loosening the tubercle of the tibia with a chisel, whereupon the two fragments were freshened and united with silver wire. Good union and function resulted, and the patient was able to return to work in the mine. A few months after leaving the hospital he returned, and at this time it was found that the tubercle of the tibia had torn away. Under local anesthesia the tubercle of the tibia was cut down upon, freshened, and sutured into place with a periosteal suture. A functional result was secured, which was almost perfect.

The indications in this case were self-evident, but the procedure with the light of our present-day knowledge might be questioned. Instead of making two vulnerable points, it probably would have been better to do an osteoplastic operation as suggested by Rotter in 1908 in the *Deutsche medizinische Wochenschrift*. He cuts a rectangular flap from the quadriceps and turns it down over both fragments and attaches it to the patellar ligament thus transferring the strain to the lower fragment. If the fragments are badly contused and comminuted the patella can be removed according to Murphy's methods as described in the *Jour. of Surgery, Gynecology, and Obstetrics*, Vol. 6, March, 1908, or a modified method of the same as described by Rogers in the *Illinois Medical Journal*, Vol. XII, August, 1908. The patella according to these authors is not essential for a flexible knee-joint.

Case 4.—Patient, male adult, aged 35, entered the hospital January 29, 1894. He had fallen from a scaffolding striking on his left knee. Examination revealed a transverse lacerated wound of the soft parts, slightly curved with the convexity upward across the patella, extending from the outer to the inner aspect of the knee. A transverse fracture of the patella was found with about one inch of separation and a rent along the inner border of the patella opening into the knee-joint.

Treatment. — The wound was carefully cleansed, and the rent in the capsule closed with a single silk suture without further disturbing the joint. The fragments were now drilled through obliquely from above downward, and a fine wire passed through the holes. The lower fragment split so that the fragments were again drilled, and this time the silver wire was passed completely around the lower fragment, piercing the tendon at its attachment. The wires did not enter the joint cavity. In addition a transverse row of silk sutures was passed coäpting the tendon on either side and also over the surface of the fracture. The wound was closed without drainage, and a plaster cast applied over the antiseptic dressing. The limb was swung in a Hodgen's splint. At the end of six weeks the cast was removed, and the knee was found stiff and very painful on flexion. Guarded passive motion was used every day, and the joint gradually became movable so that the patient could walk after some time without a limp. He was seen a year later, and he claimed that the leg was just as good as the other.

In compound fractures operative measures must be practiced, the extent of which is entirely dependent upon the nature and extent of the injury. If there are only two or three fragments, the joint is opened and irrigated, and these fragments united with sutures, preferably chromicized catgut or kangaroo tendon. Drainage should be instituted. If there is severe comminution of the patella it can be removed, as is done in simple comminuted fractures.

SUMMARY

1. Simple transverse fractures with less than one-third of an inch of separation of the fractures, with a small amount of joint effusion, and without interposition of any tabs between the fragments, should be treated conservatively.
2. In simple fractures in which there is greater separation than one-third of an inch, a great amount of distension, and interposition of tabs, and where the patient cannot raise his heel from a straight level, an open operation should be done, if the case is in the hands of a surgeon thoroughly trained in asepsis and under rigid aseptic conditions.
3. All compound fractures must be operated on.
4. Massage of the quadriceps is commenced two or three days after the injury. Three weeks later the patella itself and the entire leg are massaged, and guarded passive motion used. Four or five weeks after the injury, active motion is attempted.
5. Ankylosis will disappear without the forcible breaking up of the adhesions.

COMPOUND FRACTURES*

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HIBBING, MINN.

In compound fractures we have always to deal with a serious accident, one that carries with it a real danger, not only to the part affected, but also to the life of the patient, as well. So serious is this danger that our grandfathers considered it necessary to amputate most limbs sustaining a compound fracture. And it is only through modern treatment, employing the most rigid asepsis and most careful technic, that we are able to get the improved results of today. Every compound fracture, no matter how small the wound to the soft parts, should be treated from start to finish as a major operation, using the same careful technic in these cases that is necessary in a laparotomy. And not only is it necessary to employ modern methods in caring for these cases after they have reached a hospital or been taken to their homes, but from the very minute of the accident. More than that, it is our duty to instruct the laity how to care for these cases until medical attendance can be obtained. Such knowledge can be disseminated through the public schools, papers, clubs, and in various other ways. In some of the mining localities, schools for instruction have already been established in which the mining men are taught how to care for accident cases until a doctor arrives.

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In treating compound fractures there are four cardinal points that stand out clear and plain:

Anesthesia.

Asepsis.

Free incision.

Conservative treatment of the injured parts.

Anesthesia.—While most simple fractures, to be properly treated require an anesthetic, compound fractures almost without exception require one. Every case should be anesthetized, unless there is some definite and decided contra-indication; for only under anesthesia is it possible to properly clean the wound of the foreign matter, dirt, and splinters of bone, which many of these cases have and which must be suspected in all. It is impossible for a doctor to make a necessarily careful and thorough examination of a badly injured limb when he knows that his every move is causing the patient severe pain. An anesthetic is thus indicated, not only to save the patient pain, but as absolutely necessary in enabling the physician to properly treat the fracture.

Asepsis.—Asepsis must be rigidly enforced from start to finish. Nothing has done so much to lessen the frightful mortality that formerly followed these fractures as asepsis. From the earliest times these have been among the most serious and fatal accidents that man has sustained. And until the era of asepsis there had been no improvement in the treatment of them nor any amelioration of the bad results except when treated by immediate amputation. And in no line of surgery practiced, both before and after the introduction of asepsis, has there been such an improvement in the results.

With aseptic treatment must go a thorough cleaning of the injured parts. The skin surrounding the laceration should first be cleaned with soap and water, following this with bichloride, keeping the wound itself carefully covered with sterile gauze; or the iodine method of skin-sterilization may be used. Then after the entire operative area has been covered with sterile sheets and towels, the wound is carefully cleaned with dry sponges and swabs, removing all visible foreign material. Then swab it out with iodine, and it is ready for the next step.

Free incision.—While, undoubtedly, there are some compound fractures with small skin openings punctured by the bone, and other fractures in which it is a question as to whether the skin opening communicates with the bone or not, which do heal rapidly and without complications, still there is absolutely no way to tell in advance which case will do this and which will cause trouble. Moreover, it is impossible to ascertain from the surface examination and history of the case whether foreign substances have gotten inside the wound or not, or whether small splinters of bone are present. Furthermore, an injury sufficient to cause a compound fracture is very apt to cause more or less hemorrhage from some of the deeper vessels, which adds materially to an accident already serious. In the majority of cases, we do find some foreign matter. This, added to a bruised and lacerated condition of the tissues with usually considerable hemorrhage, makes the finest kind of a culture-field for germs. In addition to this we very frequently find that the bone ends or fragments are separated from each other by soft tissue; consequently the only safe and logical method to be pursued is to have an opening large enough to make a thorough inspection of the lacerated soft tissues and broken bone, and to enable the injured parts to be thoroughly cleaned out and replaced in their proper position. If the opening caused by the accident is large enough, well and good; but as a rule it is not. If it is not, take a knife and make it larger. Under aseptic technic free incision will do no harm and will heal as rapidly as advisable. A free incision also gives the swollen tissues room to expand allowing freer circulation of the blood, as well as relieving pain. But in incising one must use judgment and avoid cutting important vessels, nerves, and muscles, and opening into joint and tendon cavities. When a joint cavity has already been perforated it should be opened freely enough to be inspected thoroughly and cleaned out if necessary. It is far more dangerous to leave it uninspected without discovering what damage has been done and repairing that damage as well as possible and leaving free drainage, than it is to give it careful treatment. But when a joint or tendon cavity has not been opened, use every precaution to avoid entering it.

After having obtained sufficient opening, clean out the wound itself. Thorough and careful, but gentle, swabbing with gauze sponges will usually clean the tissues very well. Badly bruised pieces of tissue must be cut out when it is evident that they will slough; but when in doubt leave them alone.

The hemorrhage must be controlled as much as possibile. If any serious bleeding has taken place all blood-clots must be removed and the bleeding vessels caught and tied. Oftentimes the bleeding has already stopped and a little packing is all that is needed. Bleeding from the broken bones usually occurs and careful packing will always control that though oozing may continue for several days.

Conservative treatment of the injured parts.—Under this heading there are two important rules to bear in mind:

1. Never amputate on account of injury to the bone.
2. Never amputate on account of injury to the soft tissues without giving them a chance to revive.

If there is one thing more than others that traumatic surgery has been learning in the past few years it is to be conservative in the treatment of injured parts. Amputation should be the last thing to be considered, and to be used only after every other means of treatment has been rejected. As long as there is a fair blood-supply there is a chance of saving a useful limb. Everything depends on the blood-supply and freedom from sepsis. The bones may be badly crushed and the fracture so comminuted as to seem hopeless, but if the blood-supply is fairly good and the wound remains aseptic, a good result will usually follow. Bone has great recuperative power and if given an opportunity will usually grow. When amputation is necessary it is almost always because of injury to the soft parts, lack of blood-supply, injury to the nerves, sepsis, gangrene, or a combination of causes. But it is very rare that bone-injury requires amputation. A leg may have to be shortened four or five inches and will still be more useful and of more comfort to the owner than an artificial leg. A much longer time may be required for recovery than if amputation had been performed, and several operations may be needed to gain the result, but it is time and effort well spent.

In case of the arm, a shortened, stiff, and even crooked arm is better than the best substitute ever made. The upper extremity possesses far greater recuperative powers than the leg, and remarkable results have been obtained in seemingly hopeless cases. New bone will grow, new flexible joints can be formed, tendons transplanted, nerves sutured, and fresh sources of blood-supply established—in fact here Nature is most prodigal in her recuperative powers. We see so many cases that at first appear hopeless, which, later, grow into useful parts that we must be extremely reluctant to use the amputating knife.

What is still harder to decide upon is what to do with the small fragments and pieces of bone so often found. The more cases one has the better can he judge what to do, but it is often a question whether this small piece of bone is large enough and has sufficient vitality and blood-supply to grow or not, or whether that pointed bone end had better be cut off. A good general rule, however, is to leave them intact when in doubt and watch results. It is generally better to re-operate later than to do too much at first. Pieces of bone that will not grow will show signs of beginning necrosis in four to seven days and can then be removed, often without an anesthetic. But if a subsequent anesthetic is necessary, do not hesitate to give it, for it is generally better surgery to treat a case this way than to remove at the first operation pieces of bone that perhaps might have grown and added strength to the limb. Of course small detached splinters must be removed, as they will slough and die anyway; but all bone that has a fairly good periosteal attachment and blood-supply should be left intact.

In handling the bone fragments it is necessary to be very careful not to tear a small piece loose from its periosteum, for it is largely on this that its life depends. Very frequently small pieces of bone will grow and add materially to the strength of the limb.

In cases in which nothing but slender splintered ends remain which cannot be approximated, it is better to saw off enough to bring square ends together of sufficient size to insure strength to the resulting union.

In approximating the ends of bones, do not be discouraged if you cannot make them fit exactly. Bring them together as well as possible, and Nature will generally produce a good union. In the leg or forearm if one bone is so badly crushed as to require shortening it will usually be advisable to shorten the other bone a corresponding amount, unless the fibula is the crushed bone and the tibia is intact. In the great majority of these cases there is at least a simple fracture of the second bone which gives us the location for the shortening; but in some cases we have our choice, and then the bone should be shortened at a place corresponding to the uninjured part of the crushed bone, in order to give less trauma to the soft parts and more strength to the limb afterwards. Such an extensive operation should be postponed for a secondary operation at least a week or two after the accident. And in case infection follows the accident we must wait until the wound is clean.

Suturing bone.—The very factor that renders a compound fracture so dangerous gives us the opportunity to get, in many cases, the most perfect result, and that is through suturing the bone. Where fair, though not perfect, approximation of the bone can be obtained in a simple fracture most surgeons hesitate to operate because of converting it into an open fracture; but in compound fractures the opening is already present, and consequently nearly all compound fractures should be sutured. As to whether the suturing should be done at the time of the first operation or later, is a question of judgment for the operator to decide; but, in general, if the injury to the soft tissues is not very great and the history of the accident and general appearance of the wound leads us to anticipate an aseptic result, one may feel fairly safe in suturing the bone or, at any rate, the periosteum during the primary operation. In other cases it is often better to wait a week or ten days, and then, if no bad symptoms have developed, suture.

As to the best method of suturing, there are so many methods that one may take his choice. Personally, I prefer heavy chromic catgut, which will later be absorbed and leave no foreign material to cause trouble. This material will hold the bones together while Nature gets at least enough fibrous union started to hold the bones in place. Catgut put up in tubes, which can be reboiled previous to the operation, is the best. In a great many cases a few sutures through the periosteum will hold the bone in good position. These require no drilling and can be applied so quickly as to prolong the operation but little. If this will not suffice, the bone must be drilled and either sutured with catgut or wire, or held by some of the numerous other appliances according to the judgment of the surgeon. Should infection develop it is useless to attempt to suture until the wound is healthy and granulating.

Dressings.—It is always advisable in compound fractures to place some packing in the wound for drainage. It is impossible to say in any case that the wound is clean and free from septic germs. More or less sloughing of the soft tissues is certain to follow in every case, and there is always a good deal of swelling and congestion of the tissues, which contra-indicates tight closing of the wound. The opening need not be large but sufficient to allow the exudate to escape and to relieve the pressure due to the swelling. A small witch of gauze is often enough, and the wound may be partly sutured; but in cases with a good deal of traumatism a wider opening should be left, and more gauze inserted loosely in the wound.

For splints in these cases I prefer plaster-of-Paris, either as a trough or as a surrounding cast long enough to immobilize the adjacent joints and with a window for the wound. No other kind of splint gives the patient so much comfort, the limb such freedom from motion, the nurse so much ease in handling the patient, and the wound such access for dressing. Whether it is an arm or a leg, the plaster-of-Paris splint is the best yet devised for compound fractures.

Infected cases.—In cases in which infection develops, the wound should be reopened wide, swabbed out as thoroughly as possible, though very gently, and loosely packed to the bottom with gauze. If a bad discharge is present, a rubber tube may be needed. Over the entire wound a large wet dressing should be applied; and for this I prefer a normal saline solution. Careful watch must be kept for abscesses and new foci of infection, often at some distance. These must be opened and treated as fast as they develop. The bone itself must be closely watched, and necrotic areas must be curetted away, and loosened pieces removed as they become detached. In severe cases local treatment must be supplemented by general stimulation with particular emphasis on saline injections, both per rectum and by hypodermoclysis. These cases are often desperate, but they have as good a chance, if not a better one, for recovery than do other forms of severe sepsis.

Shock.—Shock may delay the primary operation temporarily. In the meantime clean the area about the wound, as well as the wound itself, and control the hemorrhage, which can usually be done with packing, but may require ligation. The hemorrhage must be controlled. Place a hot saline dressing over the wound and apply long, well-padded temporary splints, extending the entire length of the limb to prevent all motion. Warm the patient thoroughly and give general stimulation. As soon as the patient's condition will allow it, operative treatment should follow.

PROGRESS IN MEDICINE

Abstracts of medical reprints and articles on file in the library of the Department of Medicine, College of Medicine and Surgery, University of Minnesota.

UNDER THE CHARGE OF

DR. CHAS. LYMAN GREENE

Professor of Medicine and Chief of the Medical Clinic

These abstracts are read and discussed at the departmental meetings held monthly at the University Hospital.

COMPENSATION BY DISPLACEMENT OF THE THORACIC VISCERA IN PULMONARY TUBERCULOSIS

By CHARLES LESTER LEONARD, A. M., M. D., Philadelphia

The author calls attention to the laws of physics requiring the lungs to follow the thoracic walls and the diaphragm in their movements. Any alteration in the capacity of the lungs as a result of a pathological process, must be compensated for, or the excursion of the walls surrounding them must be decreased.

The roentgenologist has been the first to show that marked alterations in the position of the intrathoracic viscera occur in the earlier stages of tuberculous disease, without visibly changing the excursion of the thoracic walls. Even post-mortem findings fail to reveal the true condition, because of changes occurring after death.

These pathological variations can be clearly shown only by the rapid stereoscopic roentgenogram. The author reports a series of 100 cases in which there were 26 displacements of the heart and aorta, with 3 cases of pneumothorax. In 17 cases the heart was displaced to the right; in 4, to the left; and in 5 there was a rotation with an upward displacement of the heart and aorta. He cites 12 cases as illustrations of the subject reproduced in tracings made directly from the roentgen negatives.

Those cases in which no displacement of the viscera was present were early lesions, without fibroid change, or the heart was bound down by adhesions between the pericardium and the diaphragm. Williams' sign, i. e., the unequal elevation of the two halves of the diaphragm, was present in less than one-half of all the cases.

The visceral displacement may occur either through a pushing or a pulling force exerted by the diseased lung; i. e., there may be fibroid change and contraction producing the pull, or there may be emphysema, which produces the pushing effect. Attention is also called to many cases of ossification of the costal cartilages, with an approximation of the ribs over the affected area.

Both cases of pneumothorax occurred in the left upper lobe. Pneumothorax did not occur in those cases which primarily involved the upper right lobe.

In the case of left-sided hydropneumothorax, the entire heart and thoracic aorta are shown displaced well to the right. In Case 4 the heart is drawn up and rotated so that it rests upon its apex. In this series of cases the displacement of the heart to the right was four times as frequent as to the left, in direct opposition to the opinion expressed by many authors. The writer correctly stated that the roentgenologist was the first to demonstrate that the aorta was displaced with the heart in almost every instance.

A beautiful illustration is given of the extent to which the heart and aorta can be displaced upward and to the right by fibrosis, and contraction of a diseased area limited to the right upper lobe. This peculiar displacement is so marked that the arc of the arch is increased so that we can see through the arch. The left lung shows no compensatory emphysema, but there are lines of infiltration and foci of tuberculous disease scattered through it. There is also a rather remarkable illustration showing the multiple lesions of a rapid tuberculous process, as well as moderate displacement of the heart and aorta to the right. Here are reproduced the x-ray appearance of infiltration, consolidation, fibrosis, an old walled cavity, the breaking down of tissue to form a cavity, a cavity without a wall, and an area of the lower right lobe covered by thickened pleura.

In all cases the clinical findings have been compared with the roentgen diagnosis, and points brought out alone by the roentgen examination have been subsequently confirmed by the physical examination. The author concludes that the roentgen method of examination has added to the knowledge obtained by other methods of physical diagnosis, by detecting superficial areas of pneumothorax, by showing that the aorta is generally displaced with the heart, and by making evident the effect of fibroid change in displacing the viscera through its contraction. F. S. BISSELL.

TRANSIENT ATTACKS OF APHASIA AND PARALYSIS IN STATES OF HIGH BLOOD-PRESSURE AND ARTERIOSCLEROSIS

SIR WILLIAM OSLER, BT., M. D., F. R. S.,

Regius Professor of Medicine, Oxford

Many years ago Dean Swift, in a morbidly introspective moment, compared himself to an old oak in which there was death "at the top."

Sir William Osler regards headache, vertigo, convulsions, aphasia, paralysis, and a progressive dementia among the cerebral manifestations of arteriosclerosis, and lays particular stress upon the transient aphasias and paralyses,—cerebral crises, as they have been called,—with high-blood pressure.

After citing some very interesting cases in this monograph, Dr. Osler finds that the worried, apprehensive state in which patients manifesting these symptoms become after one attack, seems to be rather a safeguard against successive attacks; i. e. the worry and loss of weight lowers the blood-pressure sometimes one-half.

Osler quotes Dr. George Peabody as to the etiology, whose belief is that temporary attacks of aphasia are produced by spasmodic contraction of the muscular coat of the middle cerebral artery or its branches, which, in addition to its encroachment upon its lumen by the sclerosis, was sufficient to cut off the blood-supply to the parts to which it was distributed, causing temporary ischemia of the brain centers, and that ultimately it may last long enough to produce death, but is not complete enough or of long enough duration to cause softening.

The symptomatology of cerebral arteriosclerosis is very varied, but Osler regards the following as most important:

1. Transient aphasis. Loss of power to write and hemanopia may also be present.
2. Sensory disturbances rarely occur alone. Numbness and parasthesiæ are usually present.
3. Motor paralysis may be hemiplegia, monoplegia, or paraplegia,—all of very brief duration.
4. Mental features,—mental aberration, forgetfulness, or slight delirium.

The diagnosis is based on the existing conditions of high tension or sclerosis, or both, and the slight and transient character of the attacks, and the recurrences. Paralysis due to hemorrhage or softening rarely passes away so quickly.

The prognosis is largely that of sclerosis. Patients may live for years and be comfortable in the interval.

The treatment, of course, is that of sclerosis, with which all are very familiar. J. E. HYNES.

A NEW METHOD OF COUNTING THE BLOOD-PLATELETS FOR CLINICAL PURPOSES, AND SOME OF THE RESULTS OBTAINED WITH IT

By JAMES HOMER WRIGHT, M. D., and ROGER KINNICUTT, M. D.

BOSTON

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The blood is mixed with a diluting fluid in the proportion of 1 to 100 by means of the pipette used for counting red blood-corpuscles and the counting is done in an ordinary blood-counting chamber with a high-power dry objective. The diluting fluid employed by the authors consists of two parts of an aqueous solution of "brilliant eresyl blue" (1:1,400). The two solutions are kept in separate bottles and mixed and filtered immediately before using, as otherwise a precipitate occurs. The cyanid solution should be made up at least every ten days, but the eresyl blue solution is permanent.

With this method the platelets appear as sharply outlined lilac-colored bodies, the red cells merely as "shadows," and the white cells light-blue with dark-blue nuclei.

By their method the authors found the average platelet count in normal adults to be 297,000 per cubic millimeter, variations from this down to 226,000 and up to 367,000 being considered within the normal range.

The platelet count was studied, especially in anemia, typhoid fever, and pneumonia, and the results obtained conformed with those of Hayem and others. In secondary anemia the count was "generally high," while in pernicious anemia it was "always low at some period of the disease." In seven out of nine cases of secondary anemia, counts above 400,000 were obtained. The highest counts were 1,130,000 and 1,162,000, obtained in two cases due to hemorrhage. In nine cases of pernicious anemia, on the other hand, the counts were below normal, varying from 20,000 to 161,000.

From these observations the authors believe that a platelet count should prove to be of material assistance in distinguishing between the two forms of anemia in doubtful cases. In secondary anemia the hyperplasia of the red bone-marrow brings about an increase in the number of marrow giant cells, the megakaryocytes, which have been shown by J. H. Wright to produce the blood-platelets by the fragmentation of their cytoplasm. Consequently, the number of platelets in the blood is increased. On the other hand, the diminished number of platelets in pernicious anemia is explained by the fact that the giant cells of the red marrow are below normal in this disease.

In three out of four cases of lymphocytic leukemia the platelet count was below normal. This is attributed to lymphomatous transformation of the bone-marrow, with consequent reduction in the number of marrow giant cells.

Forty-four counts in seventeen cases of typhoid fever showed diminished platelets in the beginning of the disease, an increase as the disease progressed, and a high count during convalescence.

In lobar pneumonia there occurred, with or soon after the crisis, a great increase in the number of platelets, reaching in one case 944,000.

In an alcoholic with delirium tremens the blood-platelets showed a steady rise coincident with improvement and recovery from the delirium.

A series of parallel counts in the same blood of the leucocytes and platelets showed that variations in the two bear no constant relation to each other, which is a further evidence that the blood-platelets are not derived from the leucocytes, as some writers have believed.

E. T. F. RICHARDS.

ACUTE DILATATION OF THE STOMACH IN PNEUMONIA

By M. H. FUSSELL

American Journal of the Medical Sciences, December, 1911

Dr. Fussell reports from his own practice five cases of acute dilatation of the stomach occurring as a complication of pneumonia, and adds the histories of six more from the literature.

Of the eleven cases, five recovered and six died. Of his own cases three recovered and two died.

In almost every fatal case the condition was overlooked or had apparently existed for twenty-four hours or more before gastric lavage was instituted.

Fussell believes that early diagnosis and prompt and, if necessary, repeated gastric lavage will greatly lessen the enormous death-rate at present reported in acute gastric dilatation.

Acute rapid abdominal distension in the course of pneumonia should always suggest it. Distension, pain, vomiting, and collapse are the suggestive signs.

Under such conditions, even if the diagnosis is not positive, the use of the stomach-tube is indicated.

Immediate relief or betterment usually follows, and, according to the author's experience and belief, little danger is incurred however severe the attending collapse.

Dr. Fussell also advocates the right lateral or even the prone posture as tending to relieve the constriction of the duodenum under the root of the mesentery.

All food is withdrawn.

Dr. Fussell's paper is of great value in that it calls attention to a cause of death, present as a complication in many conditions, usually unrecognized, yet in most cases removable by a relatively simple procedure.

C. L. GREENE.

THE
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JULY 15, 1912

A TUBERCULOSIS SURVEY

The Minnesota State Board of Health will undertake a survey of at least five counties during the next five months. This is really research work in its strict sense, but it will aid the Epidemiological Division to arrive at some very definite conclusions as to the spread and infectivity of tuberculosis in certain definite localities.

This work has been in progress in Minneapolis for more than a year under the direction of the antituberculosis department of the Associated Charities, and the results have been very gratifying.

It has demonstrated the various by-paths through which tuberculosis has spread, and with the von Pirquet test it has revealed unsuspected cases of tuberculosis in the members of a family where only one case was suspected.

It has also demonstrated that not infrequently cases that have been classed, treated, guarded, and watched as tuberculosis, have not had the disease at all. A negative condition is quite as valuable as a positive one.

Such a survey is of necessity slow and laborious, as it requires repeated investigations, examinations, and tests before a conclusion is reached. It is to be hoped that physicians will aid the investigation as much as possible in order that the scientific and educational movement may be as far-reaching as possible.

The success of this survey will enable those interested in tuberculosis to go better armed before the next legislature to secure funds and sanatoria in counties where tuberculosis is prevalent.

SCHIZOPHRENIA!

For fear some of our readers may suffer from mental lockjaw, we hasten to explain that *schizophrenia* is a term for a group of conditions commonly known as dementia præcox.

Dr. August Hoch, of New York, has given an exhaustive review of Bleuler's schizophrenia in the June Review of *Neurology and Psychiatry*.

This admirable work makes a group of dementia præcox cases a compound-confusional-expansive term that "contains all paranoiac states which are not typical Kræpelinian paranoia; most psychoses which arise on the basis of psychopathic inferiority; probably many cases, which, in order to emphasize certain impurities in the clinical picture, we here call 'allied to manic-depressive insanity,' and, indeed, not a few cases which we would not hesitate to group as typical manic states; furthermore, the transitory hallucinatory and paranoiac states, and Bleuler even suggests that the acute alcoholic hallucinosis may belong here entirely; again, all chronic alcoholic or hallucinatory states; the prison psychoses and, as we shall see, many states which we prefer to call abnormalities of make-up."

It will be seen from this quotation that most of the functional groups of psychoses are dementia præcox.

This explains why so many cases of so-called dementia præcox result in recovery, and why so few comparatively drift into the hospitals for the insane.

The term is a very flexible one, and the temptation to drop all abnormalities of mentation into this enormous group is very great.

It is difficult for the student to know whether this is a disease or mental defect. At all events, it should stimulate the investigator to study all of the præcox cases from a physical and a psychological point of view. Even though one is confused at the multiplicity of conditions, it is none the less interesting.

It is admitted that we do not know what the disease process or defect is. It is supposed to be associated with some poison, probably autogenic. They may be acute or chronic, removable or permanent.

The underlying conditions which bring about the complex mental manifestation are not infrequently vasomotor with cerebral edema. This is sufficient in itself to explain the disorders of association, which block thinking, acting, and feeling, and from the objective side the discoloration of the skin, the torpor in movements, and the change in expression.

These cases present a strange and variable state of mind. We are inclined to believe them wholly demented until we are surprised at their exhibitions of memory, orientation, and consciousness. The patient who seems profoundly stupid suddenly shows his interest and activity, and makes a good recovery without the expected mental reduction.

Bleuler speaks of autism, which means a shut-in tendency, the more or less complete shutting-out of the environment.

Negativism, catalepsy, katatonic excitement, automatisms, and hysterical manifestations are common symptoms. Any or all of these conditions may exist and recovery take place.

We are too apt to give unfavorable prognoses in these cases, but as we know so little of the fundamental factors, it is not unusual for the patient who has been given a bad prognosis, to fully recover.

The removal or adjustment of physical disorders, time, and care, together with confident analysis and wholesome suggestions, promote recoveries.

MEDICAL SCHOOLS ABROAD AND AT HOME

In another column, under the head of Correspondence, appears a letter from Dr. Christian Johnson on medical matters gathered from Mr. Abraham Flexner's investigations abroad.

Dr. Pritchett, the president of the "Carnegie Foundation for the Advancement of Teaching," in his introduction to Flexner's report on "Medical Education in Europe," says that "three-fourths of the medical schools in America would be driven out of existence if the lowest terms upon which medical schools can exist abroad were applied to this country."

This comment is interesting and will incite discussion among American students who have studied in the clinics in Germany. It may be true in Germany, as elsewhere, that certain professors live on the fees received from teaching and examining students, but in Germany and other Continental countries the fees from each student are ridiculously small, and in the majority of instances the teacher receives only a part of the fee which the student pays at the matriculation office of the university. In Germany there are a few private practitioners holding professorships, and they are identified with clinical hospitals, and give private courses and receive fees from private students. Doubtless a few of these teachers give inadequate courses to incompetent students, but, as a rule, these students get their money's worth.

Taken as a whole, however, the private or hospital courses given by qualified men are well worth the student's time. German medical centers are in no sense grafting institutions, for it is recognized that Germany still leads the world in its clinics, laboratories, and painstaking methods of investigation.

The amount of clinical material and the hard drilling given to the students by masters in medicine make the student a practical man. It is only of late that the leading medical schools in America have followed Germany in demanding that the student must show his fitness for finals by actually dissecting, in order to demonstrate his knowledge in anatomy; and to examine a sick man, make a diagnosis, and outline treatment before he can pass in that branch of medicine.

Examinations of this kind, such as are now carried on in the Medical Department of the University of Minnesota, would automatically suppress schools that do not possess good teaching facilities. Quackery exists in Germany, as in this country, because the people like to be humbugged, but that does not mean that Germany or any other country should be condemned for attempting to teach medicine.

The writer well remembers that his fees in Germany and Austria were nominal, and he also remembers with gratitude that the teachers with whom he came in contact were scientific and earnest workers. A man can get about what he wants if he goes after it. If his choice lies in skimming and cramming, his object purely to pass his trials, he may spurt through, but if he wants to learn to be thorough and to acquire information, knowledge, and experience, it lies entirely with him to do so.

As has been said in these columns before, the man who goes to a foreign medical center without a working knowledge of the language of the country, is quite apt to be shifted over to the younger teaching force to practice on. Naturally, he does not grasp the situation properly, and not infrequently he comes away with erroneous impressions and sometimes an unfounded distrust for the teacher he does not understand.

There are still many medical schools in this country that are virtually correspondence-schools of medicine. They flourish in the large cities because they are privately owned and cleverly advertised, and they make it a business to grant diplomas to unqualified men, but their day is short, and ultimately their students will disappear with the expiring school.

"607"—THE NEW SALVARSAN

An additional experiment in salvarsan has resulted in a combination of methyl-sulphonic acid radicle with the arsenic preparation which makes the drug more soluble and lessens the discomfort of its introduction into the muscle for which it is primarily intended. It is not yet on the market, neither has it been used sufficiently to determine its exact value or its advantages over the older formula of "606." At least, so the report comes from Dr. Angus W. Morrison, of Minneapolis, who has been observing its application in the clinics of Munich.

CORRESPONDENCE

MEDICAL EDUCATION IN EUROPE

Willmar, Minn., July 10, 1912.

To the Editor:

Our leading medical educators usually refer to Germany as the model country in matters of medical education. The reason for this is that temporary visitors from this country see only the big men and the great institutions, and not the average product turned out of the medical schools.

However, Abraham Flexner has been over in Germany and looked behind the curtains on the stage of medical training at German universities. His report of what he saw is found in Bulletin No. 6 of the Carnegie Foundation, entitled "Medical Education in Europe."

I hope that every physician in the state will send for that report and read it, especially Chapter X, on "Curriculum and Examination in Germany."

Flexner says (page 264): "Under the present arrangement courses are prescribed in order that the professor may get an income." Can this be possible? Yes, it was true in 1875-6 when I studied medicine at a German university, and it is evidently true today. The professor—ordinarius—is an absolute autocrat, both teacher and examiner, and it lies within his discretion to pass or not to pass any student irrespective of the student's acquirement. The professor is always a very competent scientist, usually a fair-minded man, but, nevertheless, also always human and sometimes very notional. He holds office for life. His principal income is from fees for teaching and examining. Hence it comes to pass, as Flexner shows, and I know from relatives now connected with medical faculties in Germany, that the M. D. of a German university is "little more than a costly formality"—300 marks and upwards,—and that the Staats-Examen—Regorosum—so-called terrible ordeal—can be passed with ease without much real medical study. As Flexner hints, the real essentials are the professor's fees for teaching and examining.

These lines are not written to reflect on our confreres across the water, but only to point out that in medical education, as in other matters, distance lends enchantment.

The system of medical education in Germany is considered wonderfully great because it is over in Europe. But when some man like Flexner tears off the exterior veil, lo and behold, their grand system is no better than, nor as good, on the average, as, our own.

Flexner wonders why quackery flourishes in Germany. I can tell him. It is because the medical graduate—the average man—is utterly impractical. Flexner's Report shows why he is impractical. Of course, the student with a practical bent of mind can get all kinds of practical things, but he does not have to, in order to become a practicing physician. And the average student usually does not get any more than he has to to pull through.

And thus lies shattered one of our medical idols.

Christian Johnson, M. D.

BOOK NOTICES

A Text-Book of the Practice of Medicine. By James M. Anders, M. D., Ph. D., LL. D. W. B. Saunders Company, Philadelphia, 1911. Cloth, $5.50 net; half morocco, $7.00 net.

The fact that this book has passed through ten editions since it first appeared in 1897, is an eloquent testimony to its usefulness, and it is scarcely necessary at this time to refer to anything more than a few of the recent additions. The clearness and conciseness of the descriptions which have always characterized the book, remain, and the thorough revision which it has undergone make it an ideal text book for the student and for the physician, who cannot at the moment consult one of the elaborate systems of medicine. Many parts of the book have been entirely rewritten, and several wholly new subjects have been added, such as masked chlorosis, polycythemia hypertonica, angina major, minor, and abdomonis, appendix dyspepsia, serous meningitis, and tic.

Dr. Chas. S. Potts has revised the section on nervous diseases, and has given Breur and Freud's theories of hysteria at some length. A text-book which has been revised or reprinted, or both, once or twice each year since its first publication is sure to meet with future commendation.

Ophthalmic Myology. A Systematic Treatise on the Ocular Muscles. By G. C. Savage, M. D., Nashville. Eighty-four illustrative cuts and six plates. Second Edition. Published by G. C. Savage, M. D., Nashville, Tenn. Cloth, $4.00.

The first edition of the author's work on "Ophthalmic Myology" was published in 1902, and several years later the edition was exhausted. The second edition shows numerous additions and revisions both in text and illustrations.

The first chapter has been almost entirely rewritten and is devoted to a discussion of the fundamental principles of ocular rotation. In this chapter the author disagrees with some of the teachings of Helmholtz, especially as regards the location of the anterior and posterior poles of the eye.

The succeeding chapters are devoted to the heterophorias and heterotropias, which are discussed in that clear and convincing manner characteristic of the author.

REPORTS OF SOCIETIES

MINNESOTA ACADEMY OF MEDICINE

The Academy met at the Town and Country Club Wednesday, June 5th, with twenty-seven present.

Dr. Woodard read a paper entitled, "The Present Status of Salvarsan as a Remedy for Syphilis."

Dr. Armstrong, in discussing the subject, referred to the reports of the International Congress at Rome and stated that in the early history of salvarsan the Germans were over-enthusiastic while the French were pessimistic. Lately, however, the French have become even more energetic in its use than the Germans. In Paris the practice is to give four large injections at five-day intervals, and after a time to repeat this course.

Dr. Armstrong considers salvarsan a very valuable agent in the treatment of syphilis, and feels that one can give his patients far more positive promise of benefit than under former methods of treatment.

Dr. Staples made the point that this agent should be given only in the hospital because of reactions which may occur, and which sometimes prove quite serious. Many deaths have been reported following its use. The eyes and the heart should be watched closely following its administration.

Dr. Ramsey stated that until within the last few months only bad results had been reported from the use of this agent in infants. Lately, however, some brilliant results have been noted, and the difference is apparently due to the use of repeated doses. Some are giving as high as seven doses a week. The best reports are made where the mother is treated, and the child receives it through the milk.

Dr. Lundholm reported that he had used salvarsan in somewhat like one hundred cases. He emphasized the importance of chemically pure solutions. Everything should be sterilized in distilled water. Then, if one drop more of the alkaline solution be added, the solution will be kept clear, instead of becoming cloudy, as often happens without this precaution. By following this method he finds that he does not get any of the troublesome reactions from its use.

Dr. Gilfillan spoke of the use of salvarsan in the treatment of scarlet fever. There have been some very favorable reports along this line. He raised the question as to whether scarlet fever is due to an animal parasite, as only those diseases which are of this nature would be affected by that agent. In other words, should salvarsan prove to be a good remedy for scarlet fever it will be a further evidence that the disease is due to an animal parasite.

Dr. Cook spoke of its use in smallpox, but said that the evidence so far is too meager to be reliable. He emphasized the necessity for using great care in the preparation of the solutions and that only freshly distilled water should be used. He had adopted the method of making his own solutions, because he considers that the druggists are not bacteriologists and therefore cannot do it properly.

Dr. Stumm spoke of its use in pernicious anemia. He had observed a most marvelously rapid increase in the red cells, but afterward the condition was not favorable, so he is not prepared to advocate its use in this disease.

Dr. Gilfillan made the point that salvarsan is good for anemias due to syphillis, but positively bad in other forms. Therefore a Wassermann test should always be made first.

A. W. Dunning, M. D., Secretary.

RAMSEY COUNTY SOCIETY

The Society met on June 24th, with fifty members and eight visitors present.

The meeting was given up to a symposium on syphilis, the following papers being read:

"The Clinical Value of the Noguchi and Other Reactions in Diagnosis," Dr. A. H. Sanford, Rochester; "The Clinical Value of the Wassermann Reaction," Dr. Henry L. Ulrich, Minneapolis; "The Present Status of Salvarsan in the Treatment of Syphilis," Dr. John M. Armstrong, St. Paul.

C. E. Smith, Jr., M. D., Secretary.

HENNEPIN COUNTY SOCIETY

The Society held a regular monthly meeting on June 3d with 50 present.

The rooms of the Society were tendered to the Isanti County Society in which to hold its meetings, and the members of the Isanti County Society were invited to attend the Hennepin County meetings whenever convenient.

Dr. Clarence E. Willcut was elected to membership.

Dr. G. D. Haggard made his report as a delegate to the meeting of the American Association of Medical Milk Commission.

The papers of the meeting were "A Case of Pregnancy After the Removal of Both Ovaries," by Dr. Geo. C. Barton; "Tuberculous Peritonitis," by Dr. D. C. Cowles; "Medical Ethics," by Dr. R. O. Beard.

Upon the recommendation of the Board of Censors, Dr. C. H. Hunter was suspended until he shall have proven unfounded certain charges made against him.

E. J. Huenekens, M. D., Secretary.

THE BLUE EARTH COUNTY SOCIETY

The Society held a quarterly meeting at Mankato on June 24th with a good attendance.

Papers were read as follows: "Diphtheria—Then and Now," Dr. Ira Bishop; "The History of the Klebs-Loeffler Bacilli," Dr. C. C. Pratt; "The Bacteriology of Summer Diarrheas (Shiga-Bacillus)," Dr. H. D. Valin; "The Diagnosis and Treatment of Summer Diarrheas," Dr. F. L. Bomberger; "Placenta Previa," Dr. T. J. Schlesselman; "Puerperal Infection," Dr. J. C. Hughes; "Puerperal Eclampsia," Dr. Lida Osborn.

G. A. Dahl, M. D., Secretary.

NEWS ITEMS

Dr. I. D. Wiltrout has located at Sedan.

Dr. Wm. E. Tryon has moved from Murdock to Cokato.

Dr. George R. Taylor, of Duluth, was married last month.

Dr. W. J. Hewson has moved from Adrian to Ducktown, Tenn.

Dr. C. B. Heimark has moved from Akeley, Minn., to Albee, S. D.

Dr. M. A. Burns, of Milan, has been doing post-graduate work in Chicago.

Dr. J. A. Patterson, of Iron River, Wis., died last month at the age of 46 years.

Dr. Charles M. Cannon, of St. Paul, will be a candidate for state senator this fall.

Dr. C. Eugene Riggs, of St. Paul, has gone to Blue Hill, Me., where he has a summer home.

Dr. J. C. Lannin, of Mabel, was married last month, to Miss Fannie E. Gordinier, of St. Paul.

Dr. W. H. Beech, of the Lenont Hospital of Virginia, will become a medical missionary to Siam.

Dr. Wm. Davis, of St. Paul, is at his summer home at Pleasant Bay Narrows, South Orleans, Mass.

Dr. C. R. Bancroft, of Anaconda, Mont., was married in June to Miss Ellen C. Kennedy, of the same city.

Dr. C. E. Bigelow will move from Madison Lake to Dodge Center to take up the practice of his father.

Dr. E. F. Dixon, of Dayton, Montana, was married last month to Miss Bernice Black, of Kalispell, Mont.

Dr. H. C. Stuhr has sold his practice at Argyle to Dr. A. S. Hoiland, a recent graduate of the State University.

Dr. William C. Nichols, of Fargo, N. D., was married last month to Miss Jaredine M. Thompson, of the same city.

Dr. Jacob C. Brubaker, formerly of Waseca, died last month at Colorado Springs, Colo., at the age of 77 years.

Dr. Donald L. Stilwell, a 1912 graduate of the University of Michigan, will spend a year in the N. P. Hospital at Brainerd.

Otter Tail County will establish a county sanitarium on Otter Tail Lake for the treatment of the county's tubercular cases.

Dr. John C. Staley, of Mandan, N. D., has moved to St. Paul. The Elks of Mandan gave Dr. Staley a farewell banquet.

Dr. E. B. Bradley, of Burke, S. D., is doing post-graduate work in Chicago, and at the end of his course will locate in Spencer, Neb.

Dr. L. D. Bristol, of St. Paul, has been elected assistant professor of bacteriology at the College of Medicine of Syracuse (N. Y.) University.

Dr. C. A. Fjeldstad, of Wells, has become associated with Dr. A. E. Johnson, of Red Wing, under the firm name of Drs. Johnson & Fjeldstad.

Dr. John Kurtz, a pioneer physician of North Dakota, died last month at Washington, D. C. Dr. Kurtz practiced in Moorhead from 1873 to 1893.

Dr. F. S. Brugman has re-located in Minot, N. D., after having spent a year in Chicago taking a special course in eye, ear, nose, and throat work.

Dr. Laura Lane, of Northfield, has been appointed state chairman of the Public Health Education Committee of the American Medical Association.

Dr. Herbert W. Davis of St. Paul sailed from Quebec July 6th on the Empress of Britain. He will motor through England and Scotland for several weeks.

Dr. H. A. Tomlinson, of St. Peter, was elected first vice-president of the American Academy of Medicine at its annual meeting at Atlantic City last month.

The rooms of the Hennepin County Medical Society have been tendered to the Isanti County Society for its meetings as Minneapolis can be reached more easily by its members than any point in Isanti County.

Dr. A. J. Chesley, who has been associated with Dr. H. W. Hill in the epidemiological work of the State Board of Health, has been appointed by the Board to succeed to Dr. Hill as the Board's epidemiologist.

The sentence of ten years in the penitentiary against Dr. Thor Moeller, of Bismarck, N. D., has been affirmed by the supreme court of the state. Dr. Moeller was charged with complicity in the death of a young woman upon whom a criminal abortion was performed.

The supreme court of Minnesota has affirmed a judgment of $2,000 against the Tri-State Telephone Co., obtained on the ground that an *x*-ray examination made at the request of the company injured the patient's abdomen, the examination being made following an injury sustained in a fall.

The Midway General Hospital, 389 North Snelling Ave., St. Paul, was formally opened last week. Dr. Frederick E. Leavitt is president of the institution, and the staff is composed of St. Paul and Minneapolis medical men of high standing. The building is new and commodious, and the surroundings are home-like. The Hospital is easily accessible from both cities, and its moderate rates and excellent management promise to make it a great success. It is open to the patients of all physicians.

PHYSICIANS LICENSED AT THE JUNE (1912) EXAMINATION TO PRACTICE IN MINNESOTA

UPON EXAMINATION

Amundsen, Albert E.	U. of Minn.,	1912
Baker, Willard R.	U. of Minn.,	1912
Benson, Ross D.	U. of Minn.,	1912
Berrisford, Paul D.	U. of Minn.,	1912
Bratrud, Arthur F.	U. of Minn.,	1912
Carroll, William C.	U. of Minn.,	1912
Covey, Herman W.	McGill,	1907
Dedolph, Theo. H.	U. of Minn.,	1912
Douglass, Jesse E.	U. of Minn.,	1912
Drake, Charles B.	U. of Minn.,	1912
Eckstein, Arthur W.	Northwestern,	1912
Eisengraeber, G. A. D.	U. of Minn.,	1912
Gardner, Edwin L.	U. of Minn.,	1912
Hedenstrom, Louis H.	Hamline,	1911
Kirsch, Ralph L.	U. of Minn.,	1912
Kittleson, Olaf	U. of Minn.,	1912

Klein, Harry ....U. of Minn., 1912
Knight, Ralph T...........U. of Minn., 1912
Michelson, Henry E........U. of Minn., 1912
Passer, Adolph A..........U. of Minn., 1912
Peppard, Thos. A..........U. of Minn., 1912
Pollock, Lee W............U. of Minn., 1912
Rothnem, Thos. Peter......U. of Minn., 1912
Schreiner, Mabel S. Woman's Med. Col., Pa., '09
Seifert, Otto John ....U. of Minn., 1912
Snyder, Geo. W............U. of Minn., 1912
Stadfield, Clayton G. . U. of Southern Calif., 1910
Stewart, Clinton G................Rush, 1912
Thompson, Victor C........U. of Minn., 1912
Warner, Ohmer H.........U. of Minn., 1912
Weed, Frank E............U. of Minn., 1912
Whittier, Raymond W......U. of Minn., 1912
Workman, Warner G.......U. of Minn., 1912
Zimmerman, James ....U. of Minn., 1912

BY RECIPROCITY

Chatterton, Carl C.........Northwestern, 1910
Green, Edgar F. . Med. Col. of So. Carolina, 1908
Hobbs, Chas. Alfred.......Northwestern, 1911
Maechtle, Everett W.......Northwestern, 1911
Scanlan, Peter H................Keokuk, 1908
Spicer, Frank Wm.........U. of Penn., 1908
Winter, George V.........Northwestern, 1911
Wood, John R......Hahnemann, Chicago, 1911

PRACTICE FOR SALE

A well-established $3,500 practice in a live central Minnesota town, mixed American, German and Scandinavian population, two railroads, will be turned over to purchaser of good well-located residence. Price, $2,500; $1,000 cash; balance time. Scandinavian or German preferred. Address V. H., care of this office.

SPECIALIST WANTED

Wanted at once, capable eye and ear specialist by general practitioner in Minnesota town. Prefers young, single man. Nothing to buy. Give full details of education and experience in the first letter. Address M. M., care of this office.

PRACTICE OFFERED FREE

To be given away, a good village practice near Twin Cities. The only condition is that my driving rig be bought for $200 cash (less than actual cost). Must act quickly. Address J. D., care of this office.

PRACTICE FOR SALE

An excellent practice in town of 1,000 in southern Minnesota, worth $3,500 to $4,000, will go to purchaser of automobile and office furniture for $1,500. This is a snap and fine opening. Will introduce purchaser. Address B. S., care of this office.

PRACTICE FOR SALE

Will sell my practice for price of office furniture. It pays $3,300 a year; is in one of the best growing towns in Minnesota, with five railroads and seven factories; large packing-plant now going up; rich farming country; fine hospital in the city. Address G. A., care of this office.

INVESTMENT OPORTUNITY FOR A PHYSICIAN

A well-established, and highly recommended Minneapolis institution, in order to increase its efficiency and capacity, offers to a physician an active interest that will require little time and will make a profitable investment for about one thousand dollars. The best of references including THE JOURNAL-LANCET. Address D. M., care of this office.

PHYSICIAN'S RESIDENCE IN MINNEAPOLIS FOR RENT

A physician's residence, with special office entrance, 10 rooms, almost new, strictly modern, located in best residence section of Minneapolis. Rent, $75.00. References required. Address W. M., care of this office.

AN INTERNESHIP OPEN

An interneship in one of the largest general hospitals in Minneapolis is vacant and will be filled at once. Well-recommended recent graduate of reputable medical school who can remain one year preferred, but young practitioner who desires to take hospital work for shorter period will be considered. Apply at once, giving full particulars and references. Address H. M., care of this office.

PHYSICIANS WANTED

The Physicians Defense Company of Fort Wayne, Indiana, is looking for some live men to present their proposition to physicians. If any physician with selling ability is interested in this work, it might be well to investigate their proposition.

PRACTICE FOR SALE

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DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF MINNESOTA FOR THE MONTH OF APRIL, 1912

REPORTED FROM 82 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES.	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia
Ada	1,253	1,432	1													
Albert Lea	4,500	6,192	4													
Alexandria	2,681	3,001	1												1	
Anoka	3,769	3,972	5	1				1								
Austin	5,474	6,960	5	1	1										1	
Barnesville	1,326	1,353	1												1	
Bemidji	2,183	5.099	6			2									1	
Benson	1,525	1,677	2													
Blue Earth	2,900	2,319	1													
Brainerd	7,524	8,526	11	2							1					
Breckenridge	1,282	1,840	3			1										1
Canby	1,100	1,528	3	1												
Cannon Falls	1,239	1,385	2													
Chaska	2,165	2,050	*													
Chatfield	1,426	1,226	0													
Cloquet	3,074	7,031	9	2		3										
Crookston	5,359	7,559	7		2		1									
Detroit	2,060	2,807	1													
Duluth	52,968	78,466	75	17		10					1			5	1	
East Grand Forks	2,077	2,533	1													
Ely	3,572	3,572	5		1	1					1					
Eveleth	2,752	7,036	8	2		3									1	
Faribault	7,868	9,001	6			2										
Fairmont	3,440	2,958	3	1					1						1	
Fergus Falls	6,072	6,887	7	3	1										1	
Glencoe	1,788	1,788	0													
Granite Falls	1,454	1,454	*													
Hastings	3,811	3,983	5	1		1									1	
Hutchinson	2,495	2,368	2													
International Falls		1,487	7			2								1		
Jordan	1,270	1,151	0													
Lake City	3.142	3,142	5													1
Le Sueur	1,937	1,755	7			2					1				2	
Litchfield	2,280	2,333	5		1										1	
Little Falls	5,774	6.078	0													
Luverne	2,223	2,540	2												1	
Madison	1,336	1,811	3	1		1										
Mankato	10.559	10,365	14	3	1	1					1					
Marshall	2,088	2,152	2													1
Melrose	2,591	2,591	4			1								1		1
Minneapolis	202,718	301,408	306	40	6	41	6	1	2		2		4	9	17	4
Montgomery	979	1,267	1													
Montevideo	2,146	3.056	1													
Moorhead	3,730	4,840	7	1									1		2	
Morris	1,934	1,685	1													
New Prague	1,228	1,554	0													
New Ulm	5,403	5,648	8	1				1							1	
Northfield	3,210	3,215	4				1								1	
Ortonville	1,247	1,774	1	1												
Owatonna	5.561	5,658	7			2										
Pipestone	2,536	2.475	3												1	
Red Lake Falls	1.666	1,666	1													
Red Wing	7,525	9.048	12	1		2									2	
Redwood Falls	1,661	1,666	1													
Renville	1,075	1,182	0													
Roohester	6,843	7,844	20								2				5	
Rushford	1,100	1,011	1													
St. Charles	1,304	1,159	2	1												
St. Cloud	8.663	10,600	14	1		4										
St. James	2,102	2,102	1													
St. Paul	163.632	214.744	229	25	4	25	2	3			2		1	10	12	
St. Peter	4,302	4,176	6	1											2	
Sauk Centre	2.154	2,154	2													
Shakopee	2,046	2,302	2	1												
Sleepy Eye	2.046	2,247	2													
South St. Paul	2,322	4,510	0													
Staples	1,504	2,558	4	1							1					
Stillwater	12,318	10,198	7			1										
Thief River Falls	1,819	3,174	1	1												
Tower	1,111	1,111	0													
Tracy	1,911	1,826	0													
Two Harbors	3,278	4,990	5										1			
Virginia	2,962	10,473	10		1	4								1	1	
Wabasha	2,622	2,622	6	1		2		1								
Warren	1,276	1,613	1													
Waseca	3,103	3,054	3													
Waterville	1,260	1,273	0													
West St. Paul	1,830	2,660	0													
Willmar	3,409	4,135	2													
Winona	19,714	18,583	18	1		2									1	
Winthrop	813	1,043	3													
Worthington	2.386	2.385	0													

REPORTED FROM 54 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia
Adrian	1,258	1,112	1												1	
Aitkin	1,719	1,638	0													
Akeley			1	1												
Appleton	1,184	1,221	1													
Belle Plaine	1,121	1,204	3	1												
Biwabik		1,690	1													
Bovey		1,377	1											1		
Browns Valley	721	1,058	1													
Buffalo	1,040	1,227	1													
Caledonia	1,175	1,372	1													
Cass Lake	546	2,011	*													
Chisholm		7,684	5	1		1										
Coleraine		1,613	0													
Dawson	962	1,318	0													
Delano	967	1,031	0													
Farmington	733	1,024	0													
Fosston	864	1,055	0													
Frazee	1,000	1,645	1													1
Glenwood	1,116	2,161	2	1												
Grand Rapids	1,428	2,239	1			1										
Hibbing	2,481	8,832	5	1							1					
Jackson	1,756	1,907	2													
Janesville	1,254	1,173	0													
Kenyon	1,202	1,237	0													
Lake Crystal	1,215	1,038	2			1										
Long Prairie	1,385	1,250	1													
Madelia	1,272	1,273	0													
Milaca	1,204	1,102	0													
Mountain Lake	959	1,081	0													
Nashwauk		2,080	0													
North Mankato	939	1,279	0													
North St. Paul	1,110	1,404	0													
Osakis	917	1,013	1													
Park Rapids	1,313	1,850	2													
Pelican Rapids	1,033	1,019	1			1										
Perham	1,182	1,376	3													1
Pine City	993	1,258	0													
Plainview	1,038	1,175	1								1					
Preston	1,278	1,193	0													
Princeton	1,319	1,555	3			1									1	
St. Louis Park	1,325	1,743	1	1												
Sandstone	1,189	1,818	2													
Sauk Rapids	1,391	1,745	1											1		
South Stillwater	1,422	1,343	2													
Springfield	1,511	1,482	1													
Spring Valley	1,770	1,817	2												1	
Wadena	1,520	1,820	0													
Wells	2,017	1,755	1													
West Minneapolis	2,250	3,022	1													
Wheaton	1 132	1,300	0													
White Bear Lake	1,288	1,505	2												1	
Windom	1 944	1,749	1													
Winnebago City	1,816	2,555	1													
Zumbrota	1,119	1,138	4	1			1						1			
STATE INSTITUTIONS																
Fergus Falls, Hospital for Insane			10	7												
Rochester, Hospital for Insane			10			1										
St. Peter, Hospital for Insane			14	4		1										
Anoka, Asylum																
Hastings, Asylum			2	1												
Faribault, School for Deaf																
Faribault, School for Blind																
Faribault, School for Feeble Minded			4		1	1										
Owatonna, School for Dependents																
Stillwater, State Prison																
St. Cloud, State Reformatory																
Red Wing, State Training School																
Minneapolis, Soldiers' Home			12	2											1	
OTHER PARTS OF STATE			718	69	17	77	5	8	1	....	16	....	6	29	41	7
Total for state			1745	202	36	198	16	15	4	0	30	0	14	58	104	17

*No report received. Registrar not doing his duty.

109 stillbirths not included in above totals.

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PUBLISHER'S DEPARTMENT

A FAST TRAIN TO THE STATE MEDICAL ASSOCIATION

The meeting at Duluth next month should draw a large number of medical men and their wives from the Twin Cities and the southern part of the state. The Great Northern Railway has a new fast train to Duluth, and it arrives there just in time for dinner, leaving St. Paul at 2 p. m., and Minneapolis at 2:30 p. m., arriving at Duluth at 6:55 p. m. As the depot is only one or two blocks from the hotels, there is ample time for dinner.

This new train is a luxurious one, made up of a cafe-observation-parlor car and fine day coaches.

If the physicians will plan to go on the Tuesday afternoon (Aug. 13th) train, the two days given to the scientific work of the meeting will be well attended at every session. It is worth while to plan to go at this time, and thus get the full benefit of the meeting.

Further information and details will be given in our issue of August 1st.

THE ABBOTT HOSITAL

Most of our readers will recall that a few months ago the Abbott Hospital of Minneapolis was opened. This building was erected with the idea of making it as nearly an ideal hospital building as forethought, experience and ample means could construct; and the result has been entirely satisfactory. It is a delight to every physician and patient who enters it; and as a hospital it is a credit to its management and the profession.

The hospital is under the management of Dr. A. W. Abbott and a staff of twelve physicians and surgeons in special lines of practice, and it meets the needs of physicians who have patients demanding the best possible hospital care and such special treatment as a staff of this character can provide.

THE MENTHOL-KELENE AUTOSPRAY

The antineuralgic effects of Menthol have been long known. It is familiar in its solid form as "Chinese Headache Cure," and was used by rubbing over the part affected. In this form, however, it was not sufficiently efficacious, and careful study has evolved a solution of Menthol with Kelene in the proportion of 5 per cent of Menthol. The Kelene gives the necessary energy and the menthol the duration, and applied as it is by the autospray it gives the happiest results. The well-known and lasting effects of menthol, combining with the cooling, refreshing and immediate effects of Kelene, produce a complete and prolonged alleviation, and it has achieved a most remarkable success. The spray should be projected upon the painful parts, carefully avoiding contact with the eyes, as menthol, while not dangerous, is momentarily painful.

It is endorsed by the medical profession, many prominent physicians using it with the hope it will take the place of the numerous headache reliefs, which are taken internally and have the tendency to upset the stomach or act upon the heart more or less dangerously. Menthol-Kelene, being applied externally, is absolutely harmless, and it gives immediate relief.

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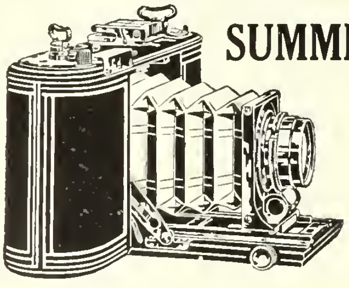
The question of a light, nourishing, easily digestible food for those who require prompt help at the least cost of bodily energy, is well answered in Grape-Nuts and cream. This famous food still holds its place in a class by itself. Made of whole wheat and barley, it affords the tissue-building albumins and energy-making carbohydrates of these cereals—the latter largely dextrinized and further converted into soluble sugars, for prompt assimilation.

Patients who have not yet regained their normal appetite or digestive powers, are usually glad to avail themselves of the crisp, nutty granules of this clean, wholesome food and the thorough mastication required is, of itself, a big help back to healthy digestion and body nutrition.

THE BEEBE BIOLOGICAL LABORATORIES

The work of the above Laboratories of St. Paul has grown so rapidly that new quarters had to be sought, and the institution now has spacious quarters at 311 Lowry Annex.

Every kind of high-grade laboratory work is done by the institution under the personal supervision of Dr. W. L. Beebe, and correspondence is solicited from any physician desiring information along this line.



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THE
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and Official Organ of the
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SPOROTRICHOSIS: REPORT OF A CASE*

BY G. S. ADAMS, M. D.
YANKTON, S. D.

For the purpose of assisting in establishing the relative frequency of sporotrichosis, I wish to call attention to an infection of which, until recently, comparatively little has been known.

Less than forty cases have been reported in the American literature thus far, and not all of these have been verified by bacteriological examination.

During the past two years more cases of this infection have been recognized and reported in America than occurred in the twelve years following Schenck's[1] article in 1898. That the disease is much more frequent than is generally believed, there can be little doubt. Those who have investigated the subject are agreed on this point. The recent interest taken in the disease has brought to our notice cases which have been heretofore unrecognized or incorrectly diagnosed. Ruediger and Miller,[2] in their paper, read before he North Dakota Association in May a year go, and repeated before the Minnesota Association in October, refer to one case (Bevan and Hamburger) as coming from South Dakota. While no other case has been reported from this state, so far as I am able to learn, Dr. Mortimer Herzberg, of the State Health Laboratory, informs me that he has made several cultures from various parts of the state, but has not, as yet, succeeded in isolating the fungus, notwithstanding the histories in some of the cases were typically those of this condition.

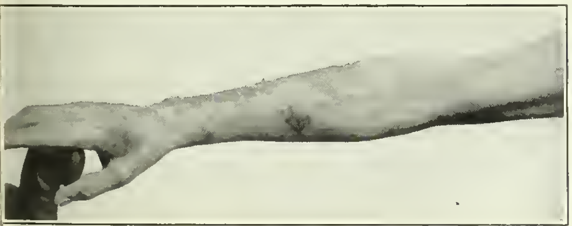

Fig. I. Photograph of arm of patient, showing nodules with the overlying skin discolored.

Schenck, of the Johns Hopkins Hospital, first recognized the disease in 1896, and succeeded in isolating the fungus in pure culture from the abscesses. The organism was studied jointly by Schenck and E. F. Smith, of the United States Department of Agriculture, who tentatively assigned the fungus to the genus *sporotrichum*. Brayton[3], in 1899, observed a case clinically, but no bacteriological examination was made. Hektoen[4] verified Schenck's findings in 1900, demonstrated the pathogenicity of the organism to animals, and proposed the name *sporothrix Schenckii*, by which the fungus has since been generally known. He was also able to find spores in the abscesses, but no mycelial threads. Other cases have been reported from the United States by Burlew[5], Trimble and Shaw[6], Hyde and Davis[7], Zurawski[8], Pusey[9], R. L. Sutton[10], Stelwagon[11], Gifford[12], J. M. Sutton[13], Bevan and Hamburger[14], Harker[15], Beam[16], Steward[17], Henderson[18], Ruediger and Miller, Turrell[19], Armstrong[20], and Ruediger and Smith[21].

Hyde and Davis refer to a similar disease found in horses known as *epizootic* or *mycotic lymphangitis*, instances of which were observed in Pennsylvania in 1907 and more recently in

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*Read at the 31st annual meeting of the South Daota State Medical Association at Mitchell, May 22 and 3, 1912.

Ohio, Iowa, California, and North Dakota. The name assigned by Dr. Mohler[22], Chief of the Pathological Division, Bureau of Animal Industry, to the causative agent in these cases was the *saccharomyces farciminosus.* More recent studies of the organism, however, and a comparison of the cultural and morphological characteristics of the organism, recovered from both man and diseased horses, by Hyde and Davis, Dr. Mohler and Page, Frothingham and Paige[23], tend to establish the identity between sporotrichosis in man and mycotic lymphangitis in the horse. It is altogether probable that the Hyde and Davis case became infected from diseased horses. Sutton[24] reports a case seen by him, of the disease confined to the wrist, following an injury, resulting while the patient was repairing a manger, at which fed a horse that had the disease in the neck. In Dr. Armstrong's case the patient's occupation had been for five years the handling of green hides of all kinds, of local animals, as well as hides sent in from various parts of neighboring states. The manner of transmission in this case, therefore, seems clear.

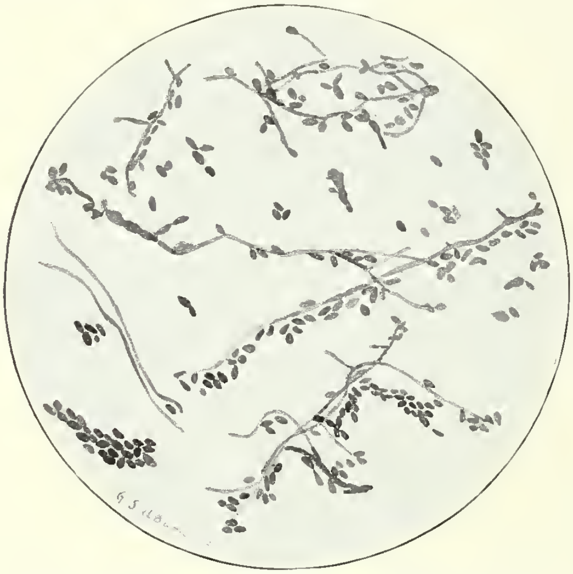

Fig. 2. Sporothrix Schenckii. Cover-slip preparation from a seven-day-old culture on Loeffler's blood-serum, showing mycelia and spores; x 1,000.

The disease has received considerable attention in Europe, and, owing to the publicity given it in France, a large number of cases have been recognized and investigated by de Beurmann and several others. Unfortunately the name *sporotrichum Beurmannii* has become identified with the organism on the continent of Europe. It is claimed that their cases differ somewhat clinically, and that the organism presents some cultural and morphological differences. However, disinterested investigators insist that the organism, as encountered in France and America, is one and the same thing, and the original name, *sporothrix Schenckii*, as given by Hektoen, in 1900, should stand. De Beurmann and Ramond first published their observations in 1903, a considerable time after Schenck's communication.

Instances of this infection have been reported also from Germany, Italy, England, and Brazil.

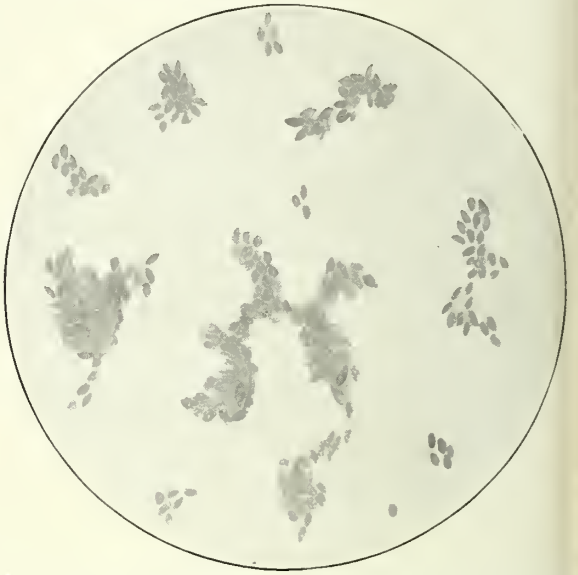

Fig. 3. Sporothrix Schenckii. Cover-slip preparation from a five-day-old growth on acid agar, showing spores only; x 1,000.

Etiology.—The disease is caused by the sporothrix Schenckii, a fungus belonging to the genus sporotrichum. The organism may be described as a branching mycelium, 1.5 microns to 2 microns in diameter, from which ovoid bodies or spores develop by budding. These spores are ovoid in shape, 5 to 6 microns in length by 3 to 4 microns in width. It is an aërobe and grows well on all the ordinary culture media, both acid and alkaline, but thrives best on glucose agar. The optimum temperature is 28° C., but a good growth occurs at the ordinary room temperature in the course of from four to seven days. The colonies first appear as white points and then fuse together, the surface appearing elevated and wrinkled, turning grayish and brown with age. On young streak cultures may be seen a delicate fringe projecting at right angles from the margin of the growth, which is quite characteristic of this organism. The fungus stains well with all the basic dyes and does not destain by the Gram method. The thermal death point is 60° C. for four and one-half minutes. The cultures may be kept alive for several months at a point just above freezing. The fungus grows on vegetable matter, and this fact may account for the prevalence of the condition in the rural districts, for many of the cases in this country have been observed among farmers and stockmen.

Moure[25], in eighteen months, found the sporothrix present in four out of thirty-six various surgical affections, and he is convinced that a systematic search for this germ would elucidate many puzzling surgical lesions and enable a prompt cure. He reports a case of a severe joint affection commencing with accumulation of fluid, assumed to be syphilitic. As the condition improved under antisyphilitic treatment the diagnosis was confirmed. The condition continued to progress until a cold abscess developed below, when the diagnosis was changed to tuberculosis. The abscess perforated outward and twenty-eight subcutaneous nodules appeared along the course of the lymphatics. The sporothrix was cultivated in pure culture, and no tuberculosis developed in the animals inoculated with the material from the abscesses.

The port of entry and the mode of infection are not known in all cases, but the infection probably occurs by contact.

Symptomatology.—The seat of the injury or primary lesion usually becomes sluggishly inflamed and gradually takes on the character of a chronic ulcer. From one to four weeks after the infection takes place, secondary nodules appear along the course of the lymphatics, and the lymphatic vessels have a cord-like feeling. The nodules vary in size from a pea to that of a hickory nut; are not much elevated; may be dermic, hypodermic, or epidermic; are usually quite painless, and the overlying skin is not affected at first, but in the course of a few days the skin over the nodules may become mildly red. After a few weeks some of the nodules break down, seem to flatten somewhat on the surface, and the overlying skin takes on a violet or purple hue. Some of the abscesses eventually break through the skin, discharging a mahogany-colored, viscid, purulent material, leaving a crater-like ulcer with thickened and undermined edges. The ulcers may improve spontaneously and heal with considerable scarring, or they may enlarge to considerable size or remain stationary. A concurrent infection of the ordinary pus germ may mask the typical symptoms of the primary trouble. The general health of the patient is not, as a rule, materially affected.

While the infection usually occurs on the extremities, it may occur in almost any organ or location, instances having occurred in the viscera, eyeball, and eyelids, bones and joints, and the mucosa of the mouth and throat.

Septicemic sporotrichosis has been reported, as well as epididimitis, orchitis, and vaginitis caused by this organism. The germ has also been found in the expectoration of a patient who was at the same time suffering from pulmonary tuberculosis.

R. L. Sutton, in 74 cases collected from the literature, found the initial lesion on the hand or forearm in 30 cases, and on the foot, leg, or thigh in 11 cases.

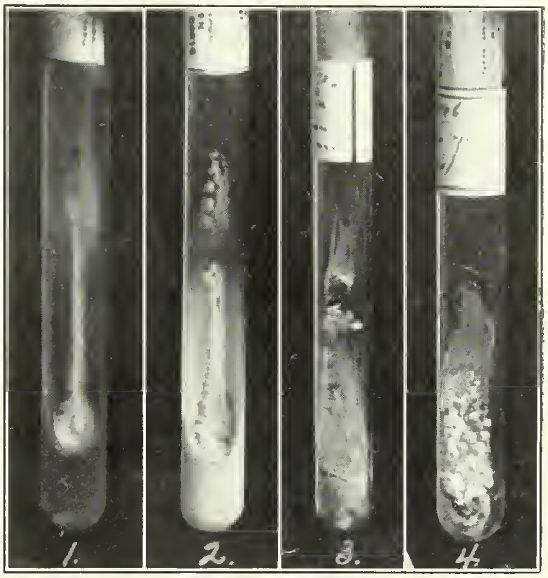

Fig. 4. (1) Slant culture on nutrient agar, eighteen days old, showing delicate fringe projecting at right angles from margin of the growth.

(2) Slant culture on Loeffler's blood-serum, eighteen days old.

(3) Slant culture on nutrient agar, showing velvety surface (old growth).

(4) Slant culture on glycerine agar, showing wrinkled and dried up surface (old growth).

Diagnosis.—In the typical cases there is usually little difficulty in making a diagnosis. "A traumatic lesion of the hand, forearm, or leg, which proves resistant to the ordinary treatment and is accompanied by one or more sharply circumscribed, painless, cutaneous or subcutaneous abscesses along the course of the limb, should always arouse suspicion, especially if the inflammatory manifestations typical of a streptococcic cellulitis are absent." A bacteriological examination in all suspicious cases should be made. Microscopic examination of the contents of the abscesses is usually negative. Turrell, however, was able to demonstrate the mycelial threads and spores from smears made direct from the lesions. When the lesions are advanced the fungus may be killed off by its own product or by a secondary infection. Widal has found the parasite in the blood, and has shown the possibility of diagnosing the condition by the sporo-agglutination method.

The condition must be differentiated from tertiary lues, tuberculosis of the skin, other mycoses, and chronic abscesses, with any of which, it must be remembered, it may be coincident or associated.

Prognosis and treatment.—While the course of the disease is essentially chronic, the prognosis in the majority of cases is good, although a spontaneous cure is rare. There have been no fatal cases reported from this country, although a few have been recorded in France.

Most cases respond to moderately increasing doses of potassium iodide internally, and completely recover in the course of a few weeks, with very little scarring. Mixed infections seem to be less responsive to treatment. Moist dressings, with some of the iodide preparations externally, usually give good results.

The following more or less typical example of the infection was recently observed:

Patient, G. O., male, aged 27, single, farm laborer, native of Norway, was admitted to the South Dakota Hospital for the Insane, January 26, 1912, suffering from an attack of manic-depressive insanity. He came to this country from Norway about six years ago, coming direct to South Dakota, where he took up his residence in Potter County, remaining three years. From there he went to Canada and took up a homestead, where he continued to live until October, 1911. He then went to North Dakota, where he remained a short time before returning to South Dakota. So far as I am able to learn, his family history is negative. Past history has no bearing except as stated above.

Present illness: At the time of his admission his hands were rough and there were several abrasions of the skin. He was continually picking at his hands and face.

On February 10, about two weeks after his admission, a small fissure, about ⅜ of an inch long, was noticed on the right hand about ½ inch above the metacarpophalangeal joint of the first finger. This was treated aseptically and antiseptically, but continued to enlarge, until February 22, it appeared like an ulcer, one-half inch in diameter, dark-red in color, with thickened edges and covered with a thin grayish-brown purulent material. At this time the patient complained of not feeling well, and an examination revealed three small subcutaneous abscesses on the dorsum of the hand and radial side of the forearm, beginning about three inches above the ulcer and extending upwards about one and one-half inches apart. Temperature, 101°; pulse, 94. The hand and forearm were only moderately swollen. The epitrochlear gland was very much enlarged, although the axillary glands were only moderately so. The lymphatic chain was easily palpable and bright-red lines marked its course. The skin over the abscesses was bright-red. The three abscesses were opened, and drained of a thick yellow pus. The subjective symptoms immediately subsided, and the redness disappeared from the course of the lymphatics under wet dressings of 1-2,000 hot bichloride. It was suggested by my colleague, Dr. R. B. Kershaw, that the case might be one of sporotrichosis. The next day a culture was made from the first abscess, which was still discharging, and several cover-slip preparations were made, but with negative results. From the culture only the staphylococcus pyogenes aureus was recovered in pure culture. New nodules made their appearance every few days until there were from twelve to fifteen, reaching nearly to the shoulder. One nodule, about the size of a cherry, appeared in the posterior auricular glands below the right ear, between the angle of the jaw and mastoid process.

On March 6th, under the usual precautions, a small nodule, which developed between the first and second abscess and which had broken down, was opened, and a dark-red, syrupy, puriform material exuded. Three culture-tubes were inoculated, and the organism, in pure culture, was recovered from slants of blood-serum and nutrient agar, the second blood-serum tube becoming infected.

On March 29th the patient was given potassium iodide in increasing doses, and at the present time all the lesions have disappeared without scarring, and the patient has completely recovered.

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THE GENERAL PRACTITIONER: HIS PRESENT STATUS AND FUTURE PROSPECT*

By Christian Johnson, M. D.,

WILLMAR, MINN.

The evolution of modern medicine during the last century has disturbed the old status of the profession. The division of labor incidental to the expansion and the multiplication of the natural sciences at the basis of medicine, has begotten the medical scientist, the laboratory man, and the original investigator. Anesthesia and antisepsis have led to the rise of modern surgery. Modern industrialism has created centers of dense population, which have furnished the field for the development of the medical specialist. Hence our leading medical journals are filled with contributions from enthusiastic specialists, and our society meetings are almost wholly devoted to specialists who have always something new and interesting to offer to the profession.

In view of these facts, it is not strange that the leaders of the profession, who almost without exception are specialists, should seemingly have forgotten that there is still in existence such a species of medical man as a general practitioner. But the latter is, as you know, only the hewer of wood and the carrier of water in the temple of Æsculapius. His work is the old round of drudgery, year in and year out: colds, coughs, measles, whooping-cough, plum-pudding colic, and old women's fidgets. He spends more time on the road fighting mud, mosquitoes, blizzards, and of late years at grease-scrubbing and wind-jamming than in the practice of medicine. The busy general practitioner has neither the time nor the opportunity to write an original monogram on his unusual case with a respectable bibliography of home and foreign authors to serve as a passport to the stage in the forum of medicine. He has usually sense enough to take his seat in the out-of-the-way corner and be thankful that he may listen to the eloquent words of the thrice-distilled wisdom that falls from the lips of the savant of medical science and specialism.

So it is, with some diffidence, that the writer of this paper on the status, utility, and future prospect of the general practitioner appears before this audience. Only a feeling of duty to our division of the medical army has constrained him to do so.

You have doubtless heard that people live outside of the Twin Cities, out in the smaller towns where there are no asphalt-paved streets, no trolly-car lines, no great hospitals, and no city ambulance that can be telephoned for to pick up a fellow human being that may be in need of medical aid. You city people wonder, of course, how people dare live out of the reach of all these conveniences; but you will still be more astonished when I tell you that people live ten, twenty, yea, thirty miles from the nearest little town, and there, in these out-of-the-way places, marry and raise families just as people do here in Minneapolis. And out there on the prairie and in the brush accidents will happen, biological accidents, sometimes, as a parturient with a justo minor pelvis, or a prospective heir who wants to shake hands with his relatives before he is born, or with a too liberal diet of choke-cherries or green apples, just as such accidents happen here in Minneapolis and St. Paul.

Now, in former times when these accidents and sicknesses happened in the families of these out-of-the-way people, they did not realize the need of medical service. They had their midwives and wise men, as all European countries have today, in such out-of-the-way places, and they believed that sickness and death was in the hand of Providence; that when disease and death invaded the household it was in some way the loving, chastening rod of God Almighty.

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*Read at the 43d annual meeting of the Minnesota State Medical Association at St. Paul, Oct. 5 and 6, 1911.

Somehow or other, this childlike faith in Providence has vanished from the minds of even out-of-the-way people now-a-days. God is no longer regarded as the direct agent of sickness and death, and it has become customary to call upon doctors under such circumstances. Even farmers' wives now consider it out of date to have midwives to attend them at their confinements, and they demand real doctors, who can give them chloroform and use instruments to hurry up matters.

Now, of course, these people would gladly call for some of the big doctors from the big cities when anything is the matter with them; but the way is long and the train-service is bum, and it would be an imposition on the big man from the city to call him so far out in the country. And so the best thing that they can do is to call one of us country doctors from the nearest little railroad town.

So this is what we common country doctors are for: to give the best service of which we are capable to these country people out of the reach of the big city doctors and for a fee which these people are able to pay. And right here I want to explain about the ability of paying doctors in the country. The people are usually honest and willing to pay what they can, but their resources are limited. What you city folks consider a reasonable fee for a surgical operation or a specialist's treatment of some simple affection would financially ruin many a family of the class of people that I am now referring to. Hence the country doctor, if he must serve his community at all, must make his charges reasonable. He cannot, like the city doctor, charge what he pleases, or else turn the patient over to the city hospital. And yet we country doctors are blamed, now and then, by our big city doctors, for not charging enough for our work, so that we, like them, might go to Europe every few years to learn the new methods of doctoring people that are being invented over in Germany. And this also explains why this anti-fee-splitting crusade has two sides, —one side pretty much all hog, and the other side pretty much all squeal.

So you see practicing medicine in the country is quite a different proposition from practicing in the city. That is why we have too few doctors in the country, and you so plenty of them in the cities. Here, as I have said, you have paved streets, cement sidewalks, all-night street illumination, million-dollar hospitals, trained nurses, trained assistants, and wealthy patients who pay princely fees. The city doctor, no matter what his specialty, must, in addition to his medical attainment, be a polished and accomplished man of the world, who can talk Parisian French and Berliner German on all the latest topics of the elite world,—men who can maintain the dignity of the profession in the drawing-rooms of Lowry Hill and Summit Avenue.

Now, contrast with this the life and work of the country doctor. He must drive here and there to get to his patients, through mud and snow and blizzards, and when the four winds of heaven are fighting for the privilege of tearing off the top of his buggy. Neither Egyptian darkness nor the rage of the elements must stop him from getting to that waiting, anxious woman fifteen miles out in the country who must have him within a certain time or leave three little tots to a cold and motherless world. Out there at the lone farmhouse, in the dead of the night, with a husband unnerved by anxiety, with three little children huddled in the corner of the room sobbing with fright for the fate of their mother, with a single solitary country woman to hold the oozing kerosene lamp and keep the fire agoing, this simple country doctor must now perform a major obstetrical operation. The simple room that has served for kitchen, pantry, sleeping-room, parlor, and reception-hall for the family is now the operating-room of this country doctor, who is now acting in the fourfold capacity of expert anesthetizer, trained nurse, trained assistant, and chief operator. Now, if this man had had at his immediate command some Latin epigrams from Virgil, or some "Wisdom of German" from Mephistopheles, or some humor in French from Molière, or some higher mathematics to calculate his chance of success, or some bacteriology so as to classify and differentiate the species of bacteria present in the field of operation, it would no doubt have helped him greatly. But, unfortunately, whatever high culture and scientific learning he had had when he left college he had long ago forgotten; and so he had to do as he had done a hundred times before under like circumstances, do the best he could, and rely on his judgment and skill acquired by experience. And things usually go well without fuss and feathers, and in due time this country Æsculapius was sleeping soundly and quietly, rolled up in his driving-blanket on the floor.

And thus it is that while you city doctors are at your medical society meetings, your medical symposiums, your sanitary conferences, your tuberculosis conventions, your smoke-sociables and your mutual-admiration banquets—while you are at your clubs and enjoying the amenities of city life, the general practitioner of the small towns is out on the prairie or in the brush on his rounds in his guerrilla warfare against disease and death. He has no regular office hours, nor eating or sleeping hours, no vacation, and no club recreations. His term of service is from the time he gets his sheepskin until he answers the long roll-call, and he generally dies with his boots on. This typical American general practitioner is in a measure the product of pioneer American life, and partly the survival of the physician of all the ages that have gone before.

The medical scientist, the modern surgeon, the present-day specialist, have all been created by the advance in general science during the last century; but the general practitioner is as old as humanity. Observation, experience, ratiocination, the medical instinct, honesty, and true humane sympathy—these are the elementary processes that made the real physician of old, and make him no less today. However limited his observation and experience might be, if he had good judgment, had the medical instinct, was careful and honest, he was a safe physician.

In the course of time a body of medical facts accumulate, and science sifts these facts and proves them or disproves them. New facts are discovered. Theories are constructed to aid the mind for further progress. These proven facts, theories, and processes the practical physician takes and utilizes for the care and relief of disease and suffering.

But the physician deals with a patient, a very complex entity of infinite variability of mind and body. Notwithstanding all the clinical tests, chemical, physical, and psychic, there still remains in every patient examined a vast unknown territory, a large number of unknown factors, that must be valued by a guess. Here is where the medical instinct comes into play. Some men have wonderful power to diagnose and prognose cases; others, of equal and superior training, hardly any. In order to be a musician one must have an ear for music. So in order to be a physician, medical instinct is necessary.

In private practice the object is to relieve the patient quickly, safely and pleasantly. That is what the patient employs the doctor for. Here is Johnnie with fever, vomiting, and pain in his abdomen. Now, it is immateral whether the doctor called is a linguist, an orator, or a mathematician, or how many titles he can write after his name; but he must be able to decide whether Johnnie has plum-pudding colic or appendicitis, and he must be honest enough not to make a diagnosis of appendicitis just because an operation-fee can be got that way, and Johnnie's father would never be the wiser.

Honesty, learning, and medical instinct is the tripod on which a medical career rests. A man who lacks any one of the three cannot be a competent medical advisor and practitioner; but a large degree of one of the elements will, to certain extent, compensate for a less degree of either of the others.

The automobile industry has developed during the last decade both a scientific and a practical expert. The auto-engineer is the scientist. He designs the machine and tests his material in the laboratory. He deals with foot-pounds and chemical reactions. The practical auto-expert is the trouble-man in the garage. He listens to the hum of machinery and adjusts the working mechanism of the machine. Each is an expert in his own sphere. Each must receive a different training. The scientist must be thoroughly grounded in mathematics, chemistry, and physics. The practical man ought to have some science, but he *must* have shop and road experience and practical instinct. Now, the general practitioner is the practical trouble-man in medicine.

Let me cite a couple of actual cases which have come under my observation lately, to illustrate the difference between the scientist and the practical man. Mrs. M. O. is 58 years of age and of a nervous temperament. She has a hypermetropia of about 3.50 diopters. Some time ago she consulted an oculist, an A. B. and M. D. of one of our best universities. He tested her eyes and gave her glasses. Well, she was no better with her glasses than before; rather worse. She went back to the oculist and told him how she felt—felt like walking upstairs when she walked on the level floor. He tested her eyes again, and told her her glasses were right and that she must continue to wear them until she got used to them. After two weeks' more experience she went back again with the same story and got the same advice. She kept on wearing these glasses two or three weeks more until she was bedridden, from eye-strain. Then some good neighbor told her that Mr. A., the optician, the local jeweler, could fit glasses better than the M. D.'s. The optician was called and came with his test-case and fitted her with suitable plus spheres, and, lo and behold, she was cured of her eye-strain and nervousness. Now, this oculist is a first-class man, but too scientific to be of much practical use, either to the profession or to the public. He relies on his scientific instruments of precision and ignores practical clinical facts. No old-time practitioner of twenty or thirty years' standing, with a simple, practical education, would have overlooked this woman's subjective symptoms and given the jeweler a chance to boast that he could fit glasses where the doctor failed.

Here is another instance of a class of cases quite common nowadays. A. B., a prominent citizen, was taken with acute catarrhal appendicitis. His doctor, a late graduate of one of our prominent medical schools in America, and a college man, told him he would have to be operated on or he would die. Of course, the family got alarmed and a counsel of relatives was called. One of them stated that an operation was not necessary, and that a certain Christian Scientist lady of a neighboring town could cure him without an operation. She was sent for and cured him, *post hoc or propter hoc* cuts no figure in so far as the boost to Christian Science in that locality was concerned. Now, a sensible general practitioner of the old school would have made no such blunder as that. He would have said: "I advise operation as the best thing to do, but proper treatment without operation may cure you."

It has been rehashed to the public of late years by men who pose as leaders of the profession in this country and as the especial sympathizers with the dear public in their affliction with poor doctors:

1st. That the general practice of medicine is all humbug; that, for instance, a doctor can do nothing for a pneumonia patient, except to look on and draw his fee.

2d. That the American doctor is no good anyway, because, as a rule, he is not a polished man of the world like the doctors are over in Europe.

Now, it is safe to say that neither Dr. Bevan nor any of his tribe of critics ever saw a real German general practitioner in his native village or small city. I have seen and talked and visited with these general practitioners in Germany and Denmark, first in 1876 and again in 1905, and I failed to find any of them that knew any more about medicine than the ordinary American doctor. The main difference between the common doctor here and over there is that here the doctor is a free man, professionally as well as politically, over there he is in a straight-jacket of a state medical hierarchy. And as for the medical service that the common people receive over there it is not to be compared to the service here. At confinements the opinionated, callous, and ignorant midwife will let a woman lie and suffer until she is moribund before she will call a doctor. Doctors don't go to confinements, except to perform major obstetrical operations. It is beneath their dignity. The mortality of the puerperium is as high now as it was forty years ago, outside of institutions. (Jour. A. M. A., Dec. 12, 1908, pp. 2070 and 2099.)

As for the common diseases that make up the major part of the practice of the physician there, they are in the hands of the irregular practitioners who generally go under the name of Homeopaths, and they have had no medical training whatsoever. In Denmark there are 50 to every 100 regular physicians; in Prussia 36; in Saxony 66. In Dresden, a city of 400,000 inhabitants, there were, in 1909, 375 listed irregulars, and of course many more. (Jour. of the A. M. A., Sept. 10-17, 1910, pp. 957, 1037.) In the country districts I saw more neglected surgery and chronic skin, eye and throat diseases than can be found in four times the population of similar conditions of society in this country. And yet they have their government district sanitary officer, their scientific paternalism, and their wonderfully trained physicians. Of course, this bureaucratic state medical machine of European countries, with its titled and decorated staff and army subalterns, looks imposing at a distance, but on close inspection it is quite an ordinary every-day affair. There are here thousands of people going to Europe every year and coming back again, and people who have lived for years over there. Of late years I have talked to hundreds of such, and I have asked them if they thought the doctors over there were better than here, and their answers are invariably in the negative. This is not written in a spirit of bravado, but simply as an answer to those so-called American scientists who have made it the mission of their lives to run down the average medical man,—one of the, if not the, most self-sacrificing citizens of this republic.

And now what of the future of American medicine? Shall we go on and develop the profession in a spirit of democracy and utility for the service of the common people on the old lines? Or shall we proceed to establish a political bureaucratic elite scientific state paternalism in medicine on the European plan, to watch over the health of the dear public and to serve as the senile and decaying remnant of a once virile American medical profession?

This is mainly a question of medical educational policies. If the present so-called high standard, ultra-scientific medical educational program shall prevail in this country it is only a question of time until the typical American physician shall be no more.

Listen to what Dr. John B. Murphy says in his presidential address at Los Angeles: "In order to meet the educational requirements for matriculation in the modern medical school, the young man is forced to keep his face in the folds of books from his infancy. He has had no opportunity to think; he has not been taught to think; he is a book-stuffed, machine-made, non-thinking automaton, albeit a fit and acceptable applicant, according to present requirements, from whom a medical school is *supposed* to make a thinking medical man. What marvelous powers a medical school must possess! How is it possible? What changes should be instituted in the evolution of the medical embryo?" (Jour. of the A. M. A., July 1, 1911, p. 4.)

Here you have an authoritative exposition of our present preliminary medical curriculum! Some boys cannot be spoiled. The average boy, as an eminent writer said lately, usually brings back from college, "a college yell, a purple coat, a bull pup, and a settled conviction that he knows more than the old man."

And what about this great university medical course? Dr. Murphy says we have swung from the frying-pan of the commercial medical college to the fire of university medical college, science-hobby-riding. We common doctors have thought so for some time, but, of course, would not dare to offer an opinion on such a subject.

And what about the future? Some day in the not distant future the common doctors of this state will get together and establish a medical school that will train physicians for the common people. It will not be in connection with a university. No practical medical school can exist for any length of time under the control of ultra-scientific university professors.

DISCUSSION

Dr. A. D. Hard (Marshall, Minn.): Dr. Johnson's subject is so broad that he may be graciously excused for omitting his views upon the relation of the general practitioner to the hospital surgeon and the city specialist.

I *know* that he will agree with me when I say that these special men, and the theoretical doctors who edit our medical journals, have been saying a great deal of late concerning the so-called "fee-splitting" question, and have been placing much undeserved opprobrium upon the country doctor until, overwhelmed by the wordy onslaught, he crouches meekly in the remote corner where he has been kicked.

We are getting *very* tired of hearing the robber cry "stop, thief," and we believe that the time has arrived for the general practitioner to turn from his broad field of universal work, and champion the disinterested and honest side of this question.

The assertion that the general practitioner peddles out his cases at auction to the special man who makes the highest bid, is a verbal monstrosity conceived in corruption and brought forth in sin. The only reasonable explanation of such a cruelly made accusation is that the maker is trying to cover up the unjustness of his position.

The surgeon and special man, under the guise of strict adherence to medical ethics, are now actually robbing either the country doctor who brings them a case or the suffering patient whom he brings. When a case requiring the surgeon's or special man's operative work is brought to the attention of the general practitioner he is expected to give a generous amount of his time, knowledge, judgment, and skill in arriving at a correct diagnosis on which to base advice of momentous importance. He must not make a mistake and send the patient on a long and expensive journey to a hospital unnecessarily, neither must he fail to promptly appreciate the insidious approach of a mortal malady. He is held strictly responsible for not only his own part of the complete treatment of the case, but largely for the results of the operative work which he advises.

It is now customary for the surgeon and special man to charge exactly the same amount for the operative work that would otherwise be charged by them had the patient applied direct, and placed upon their hands the diagnosis, responsibility, and care of the case leading up to the operative part. If the general practitioner inquires where *his* fee comes in, the special men, backed up by the editors, tell him to charge the patient up with an independent fee adequate for the services rendered. Spirit of Æsculapius! What does this mean? Does it not mean a conspiracy between the country doctor and the surgeon to compel the patient to pay once for the operative work, and twice—*yes twice*—for the diagnosis, responsibility, and advice? This is nothing but highway robbery, cleverly conducted under the sheltering cover of medical ethics. It is unjust, dishonest, oppressive, and even criminal.

The special man in a large city, strenuously trying to secure a foothold where the ground is uncertain, may, possibly, be excused for such rank dishonesty, but the old hayseed-covered country doctor of the rural roads—never. His patients are not merely incidents of a day; they are bound by ties of friendship, and rather than place upon them such an unjust burden, he will meekly accept the special man's "thank you for referring the case" as his *only* compensation. But his conscience remains clear, and he sleeps well.

But tell me, is it any nearer just to rob the general practitioner of *his* pay for work done than to overcharge the patient and thus rob *him?* If one hundred and fifty dollars is a fair price to charge for the entire service called for in treating a case of appendisectomy, one-third of that amount is but fair compensation for the preliminary part leading up to the operation, and two-thirds should be enough for the skilled hand that does the cutting.

Usually the country doctor makes one visit, gives some office advice, and then accompanies the patient to the hospital for the operation. From the standpoint of his farmer friend he should charge for *one* visit, make *no* charge for the advice, and accompany the patient as an accommodation. The actual value of the service rendered is certainly fifty dollars, but if that amount is charged it will seldom fail to result in the loss of future patronage of far greater value.

Should the surgeon inform the farmer that the work of determining the nature of his case and the operation to relieve him require a charge of one hundred and fifty dollars, he will make no complaint whatever. If the family physician tells the farmer that this amount will cover the entire work, he will not complain, but if the farmer is compelled to pay two hundred dollars for the same operation which his neighbor who went direct to a surgeon paid only one hundred and fifty for, he will consider himself swindled.

There are several possible ill effects of the present custom outside of its dishonesty.

The general practitioner must permit the special man to hog the entire fee, or he must evade connection with such cases and allow them to drift whither they will for relief. At the present time he is quite largely doing the latter way, and the numerous cases that go from the small towns to the "Associated Doctors," the "Medical Institutes," and the "Christian Science" fakers, are but the logical result.

The effect of this on the public is to deprive many worthy persons of the advantages of a physician's judgment and advice, and allow them to become victims of quackery.

The *honest* way to handle these cases would be to make a fair charge for the complete work, telling the patient that the amount is to be considered as compensation for the services of both the family physician and the operating surgeon. It makes no difference whether the surgeon or the family physician collects the fee, the amount should be the same.

ABORTIVE TREATMENT OF ACUTE GONORRHEAL EPIDIDYMITIS*

By Oscar Owre, M. D.

MINNEAPOLIS

If we review the subject of acute gonorrheal epididymitis with the object of getting at some good reliable mode of treatment which will relieve the patient of his pain and quickly reduce the swelling and restore the swollen structure to its normal state, we shall come to the conclusion that, in spite of all the methods advocated, the end-result is, after all, one of expectancy.

Epididymitis is by far the most frequent of all the complications of acute gonorrhea in the male. According to J. Simonis it is said to occur in 27.5 per cent, and by Casper in 20 per cent, of all men suffering from gonorrhea. These percentages have, no doubt, been reduced considerably since the introduction of our newer silver salts and modern methods of treatment.

It may occur at any time during the disease, but more often at about the third week or when the disease is at its highest point of inflammation. Early instrumentation, physical strain, alcoholic debauch, coitus, too vigorous treatment, are factors which favor its development. It may be an exacerbation of a previous inflammatory process in the epididymis. Too vigorous massage of the prostate has been followed by epididymitis. Occasionally we cannot account for its onset.

The infectious material reaches the epididymis by way of the ductus ejaculatorius to the vas, and by the latter to the tail of the epididymis. Sometimes, however, the process begins in the tail or head of the organ without infection of the vas being manifest clinically. The gonorrheal virus is supposed to be carried by an antiperistaltic wave in the vas.

The inflammatory process gives rise to pain and swelling, fever, and ill-feeling. This usually begins in the tail, then spreads to the head, and finally, but not always, gives rise to fluid exudate or acute hydrocele, rarely to orchitis.

Often, without treatment, the inflammatory process reaches its height at about the fifth or sixth day, and then gradually subsides with more or less thickening and hard swelling in the tail or head of the epididymis. It is this hard nodular infiltration or swelling which, in a good percentage of cases, causes obstruction in the semen channel, and if bilateral may lead to complete sterility. The percentage of cases rendered sterile is difficult to ascertain. Benzler, 1898, says 63.5 per cent become sterile; others claim more or less. In unilateral cases there is of course not resultant sterility but a decided oligospermia.

Of the many methods of treatment, I shall mention a few. They are rest, diet, attention to bowels, careful treatment, suspensory bandage, etc., and prophylaxis is of course imperative. When the attack supervenes, the patient should be put to bed, and the testicles supported high, with hot or cold applications. Ice should not be applied, as it may cause gangrene, and it also favors the development of nodes. Heat is best applied by means of the various poultices. When the disease begins in the tail, a local application of pure guaiacol is often efficient; when in the entire epididymis, the same drug in lanoline, two drams to six drams of the latter being quite efficient to reduce the pain and swelling. Tucker advocates a saturated solution of magnesium sulphate applied as wet dressings for twenty-four to forty-eight hours.

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*Read before the Hennepin County Medical Society, April 4, 1912.

The pains may be relieved, but the swelling goes on its way until it has reached its maximum. Gradually the exudates become absorbed, and the organ returns slowly to nearly normal, but most often there remains the infiltration which the patient invariably calls our attention to, asking how long before that will disappear.

Some authors recommend multiple punctures. Hagner opens the tunica vaginalis at the junction of the testis and epididymis, and a drain is inserted. The results from this method are better than from the treatments detailed. The vaccines and serums have been used of late with some success. When a patient suffering with acute epididymitis presents himself for treatment, we lose time if we try to have autogenous vaccines prepared, and the stock vaccines may or may not be of value, at least such has been my experience in a considerable number treated by this method. Dr. Frank advises injections of fibrolysin and hot applications. Bier's hyperemia method has not met with approbation.

Dr. Ernest Finger in his discourse on sterility says that the best method to pursue is first to treat a case of acute epididymitis in such a manner as to guard against and prevent hard swellings and infiltrations. He warns us not to use ice applications, for these, while they may relieve the patient, always result in hard infiltration.

All these methods are most often gratifying to the patient, and they all get well in one sense of the word, but they are, *per se*, methods of expectancy, and there is an absolute uncertainty as to how much swelling or infiltration we are going to have left in this epididymis. It is this factor which has induced the writer to adopt a method of treatment which, above all others, seems to reach the ideal.

The method of treatment which I am to detail is the so-called colloidal therapy, or the injection of a colloidal silver preparation into the very substance of the acutely inflamed epididymis.

At first, however, it might be desirable, as well as interesting, to say a few words about colloids. Colloids, or colloidal metals, are suspensions of metallic particles in a liquid medium. These particles are minute beyond description, ultra-microscopic, and when viewed through a suitable prism are seen as brilliant points, animated by Brownian movements. By exact experimental methods it has been demonstrated that the surface of particles in one c. c. of colloidal gold may attain to a total of 600 square metres. These particles have a bactericidal property which is either due to a fermentation or is of a katalytic character, and having the advantage of such immense contact surface, a small amount injected is capable of coming into contact with an immense diseased area and, theoretically, at least, ought to be of extreme value. Colloids are prepared by two methods, namely, the chemical and the electrical. As an example of the first, I might mention collargol, used extensively of late in cystitis and renal lavage with better results than all the newer preparations of silver. The electrical method has been shown to be more accurate than the chemical. It is a finer suspension and safer to use as an injection. In the preparation of electrargol, the silver is comminuted to the colloidal state by passing an electric spark from one silver plate to another in distilled water.*

This substance in its present state is highly unstable and when injected into an organism becomes immediately precipitated, owing to its contact with the so-called electrolytes, and as a result it loses its value as a therapeutic agent. Therefore, before it can be used it must be stabilized with a solution of a natural colloid of the same electric polarity. After this has been accomplished, it can be injected without the risk of precipitation. These suspensions of precious metals have been used for some years, especially by the French, and are decidedly gaining recognition as valuable agents in the treatment of various diseases, febrile and suppurative conditions.

The value of this agent as an abortive treatment in acute epididymitis was first called to the attention of the profession by an illuminating article by Dr. Paul Asch of Strassburg in the February,

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*Annals Clin. Laboratory.

1911, issue of the *Zeitschrift für Urologie*. He began his investigation by injecting the various silver salts into the tissue of the epididymis and was encouraged by far better results than with other methods of treatment. It was not until he used electrargol that the ideal results with a minimum amount of pain and complete *restitutio ad integrum* were obtained. After the drug is carefully isotonized, 15 to 30 drops are carefully injected into the epididymis by an exceedingly fine needle. The point of insertion is best sterilized by painting a small area with tincture of iodine. If the patient can remain in bed for a day it is better, the testicles being placed upon a shelf of adhesive plaster made by running a four- or six-inch strap across both thighs anteriorly.

From a limited, yet surprisingly satisfactory, experience with this preparation in the treatment of acute gonorrheal epididymitis, I wish to report the following cases. I have also included the history and records of two cases treated by me at the City Hospital and submit them in the words of Dr. W. J. Kremer, who was at the time senior interne.

Case 1.—February 20, 1911. C. B., aged 24, able-bodied man; carpenter. His first attack of gonorrhea was one year ago. During the fifth week he had acute epididymitis on the left side. He was in bed six days. Has taken treatment at irregular intervals since this time, but still has the morning drop. Seven days before consulting me he had intercourse and four days later developed swelling and pain in the right epididymis.

Examination: Urine contained pus and shreds. There was very little discharge. Gonococcus present. swelling and extreme tenderness in tail of right epididymis. The left epididymis revealed a large, hard infiltration in the tail and head from the previous attack.

Treatment: Twenty drops of electrargol were injected into the inflamed tail of the epididymis, using a very fine needle. The scrotum was placed in a well-fitting suspensory. He had considerable pain for one and a half hours, but after this the pain ceased. The swollen structure returned to normal at the end of four days, and there was no swelling or induration as a result of the inflammatory process. He was treated for chronic gonorrhea for nine weeks. On May 7, 1911, obeying a previous request, he brought me a condom containing his ejaculatio seminis. In this I found great numbers of spermatozoa.

Case 2.—March 1, 1911, E. H., aged 22.

History: Denies previous infection from venereal disease. February 10th he developed gonorrhea and was treated by daily injections of permanganate solution by a local physician. February 28th he developed acute epididymitis. On examination, he showed a small undescended testicle in the left groin. Right epididymis intensely swollen and painful. Thirty drops of electrargol injected into tail; 10 drops into head, the injection being encouraged to penetrate into mediastinum as much as possible. Patient complained of sharp lancinating pains for about 30 minutes, but was able to go from the office to his home. There was no further pain, and complete *restitutio ad integrum* was obtained in sixty hours.

Case 3.—March 30, 1911, C. M., aged 31; traveling man. Chronic gonorrhea of two years' standing. Active gonorrheal epididymitis of left side following alcoholic debauch. Tail of epididymis enlarged to about the size of a man's little finger. Injected electrargol at 5 p. m. That night at 9 p. m. the pain entirely disappeared, and the parts returned to normal in 36 hours. Six days later, upon lifting some heavy bags, the condition returned in the head of the epididymis. Swelling and pain. A second injection of 25 drops was made in the head of the epididymis with brilliant results and no further recurrence.

Case 4.—September 17, 1911. C. O. F., aged 22; single; traveling man. Had gonorrhea for nine weeks. Still some discharge. I was called to the hotel to see him, as he was in too weak a condition to walk. The left side of the scrotum presented a mass of inflammatory swelling as large as a good-sized fist. The scrotum was tense and glistening, and the mass was exceedingly sensitive and painful. Temperature, 103°; pulse, 108. Duration of attack, three days. Some fluid was tapped from the acute hydrocele. The epididymis was injected with 60 drops electrargol, 30 into the head and 30 into the tail and mediastinum. Pain necessitated a hypodermic injection of morphine. Patient slept most of the night, and the swelling was reduced to normal in about five days with no induration.

Dr. Kremer's two reports are as follows:

Case 1.—H. M., aged 37; engineer; married; wife and two children. He had gonorrheal urethritis two years ago, and treated himself. There were frequent exacerbations associated with frequent and burning urination. One week ago, after lifting heavily, he began to have pain in the left testicle, followed by swelling. Condition became worse, and two days ago he had to quit his work on account of the pain and discomfort. Was at home two days without improvement. Comes to hospital for treatment.

Examination: Left epididymis is swollen and hardened; scrotum, edematous and tense; cord infiltrated, enlarged, and tender.

Treatment: Twelve drops electrargol injected into both head and tail of epididymis at 1 p. m. Pain continued for about an hour, when it began to disappear. At 6 p. m. the pain had entirely disappeared and the swelling was greatly reduced. Left hospital at 9 p. m.

Note.—Patient had entered hospital to remain an indefinite period; however, at 9 p. m. on the same day that he had entered the hospital, he begged to be allowed to go home, that he might return to his work in the morning.

Case 2.—C. G., aged 22; elevator operator; single. He had gonorrheal urethritis five weeks ago, and treated himself. Two weeks after the onset, epididymitis developed in the right side. The patient was in bed six days, when the swelling and pain began to disappear. Two days later the left epididymis became involved. Was in bed one day and then up and around for about a week, when the pain became so severe that he was forced to stay in bed. After remaining in bed two days without improvement, he came to the hospital.

Examination: Undescended testicle palpable in the right inguinal canal. Left epididymis readily felt as a hardened crescentic swelling overlapping the testicle. Scrotum was red, edematous-looking, and tense. There was extreme pain and tenderness.

In the majority of the cases which I have treated with this method, now 16 in all, a single injection will successfully abort the condition, if it can be made early. In those of longer standing, say three to four days or more, it becomes necessary to make a second and, rarely, a third injection. It cuts short the duration of the disease and will bring the swollen organ back to its normal state, that is, without thickenings or infiltrations, more rapidly and by far more efficiently than any other method so far advocated, with the possible exception of Hagner's operation, which, as we know, requires general anesthesia and is a formidable operative procedure.

Treatment: Fifteen drops electrargol injected into epididymis at 5:30 P. M. At 7 P. M. the patient felt so much relieved that he asked to be allowed to go home. Next morning the pain had entirely disappeared, and the swelling was so much relieved that the scrotum could be picked up between the fingers and folded over the testicle. He left the hospital that day, apparently well.

NOTE.—To the present date I have not made use of this agent in any other condition than gonorrheal epididymitis, but it seems to me quite reasonable to believe that it may possess a field of usefulness in gonorrheal joint-affections, namely, the arthritic type where there is involvement of the joint synovia proper and the articular ends of the bone. In the osteoarthritic type the diseased foci would of course have to be located by means of the radiograph. Then it would depend upon the skill of the surgeon as to whether he would be able to inject and impregnate the diseased areas of rarefaction with the preparation.

HEALTH SUPERVISION OF SCHOOLS*

By J. G. Parsons, M. D.

SIOUX FALLS, S. D.

The public school system may be considered as a financial venture in which every citizen is interested and in which every tax-payer has an investment upon which he has a right to expect a reasonable return.

Experience has shown that education is the cheapest form of defense. Money invested in it brings returns in the form of good citizenship, which must assume the responsibilities of the society of the future,—law-abiding, self-controlled, wealth-producing citizenship.

Like all other business concerns the school system will show returns on the investment in proportion to the wisdom of management. It is generally conceded that efficiency in management is largely concerned in the elimination of unnecessary wastes to the end that every bit of energy expended may be productive of good results. The teaching of subjects of practical importance by competent teachers under wise supervision, is admitted by all to be fundamental to the success of educational efforts.

The material upon which these employees in our educational manufactories are working has hitherto received relatively little consideration. Each bit of pupil material to be wrought into efficient citizenship has received practically the same treatment, without regard to the fact that the quality of the material in many cases may be inferior and that it is possible to improve that quality.

It takes as much, and more, of the teacher's time to get results from inferior material as it does from good material, and in this process is involved a prodigious waste of time, energy, and money.

Children with defective physical make-up are not capable of mental development to the extent of those favored with "a sound mind in a sound body." Normal physical development is a prerequisite to normal mental growth. We hear a great deal of late years about conservation of our national resources. Our forests, waterpower and coal deposits concern us greatly, but comparatively little attention is paid to the appalling waste in human life and efficiency due to preventable diseases and death. "Our national health," says Theodore Roosevelt, "is our greatest national asset."

A well-organized public school system expends approximately $50 per capita annually. If by reason of physical defect a pupil is rendered incapable of normal mental development the $50 expended upon him will not bring the returns it ought. Leonard P. Ayres, of the Russell Sage Foundation, estimates the annual waste in the schools of our country, due to physical defects which result in retardation, discouragement, and dropping out of school, at $12,000,000. It is obvious that this waste may be stopped by the adoption of such methods as will bring about the highest possible physical condition of the pupils. This is practical conservation. Dr. Luther Halsey Gullick states that "Public schools are a public trust. When the parent delivers his child to their care he has a right to insist that the child under the supervision of the school authorities shall be safe from harm, and will at least be handed back to him in as good condition as he was at first. Not only has the parent the right to claim such protection, but even if he does not insist upon it, the child himself has the right to claim it."

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*Read at the 31st annual meeting of the South Dakota State Medical Association at Mitchell, May 22 and 23, 1912

Efficiency in education demands, then, not only that the child shall be in good physical condition personally, but that his environment in school shall be such as makes for health. He must be housed in a sanitary building, and, what is even more important, must be afforded adequate protection against communicable diseases, which are so prone to be disseminated from public gatherings of all kinds. Modern sanitarians have discovered that the public school is the great factor in disseminating communicable diseases, and really constitutes the key to the problem of gaining control over the hosts of preventable disease, which are responsible for fully one-third of our sickness and death.

The method of obtaining and maintaining the conditions of physical health and sanitary environment which are so essential to efficiency in our educational system is Health Supervision of Schools. The functions of this supervision may be summed up briefly as follows:

1. To insure sanitary surroundings, a survey of the school buildings and grounds must be made.
2. The detection of physical defects in pupils and the notification of parents of the findings.
3. The control of epidemics in schools which may radiate therefrom.
4. Education of pupils and parents along sanitary lines.

A *sanitary survey* should cover such matters as the lighting of school-rooms, which has an important bearing on the prevention of eye-defects.

The heating and ventilation should receive careful attention.

The seating is very important and has much to do with the cause of deformities.

The disposal of dirt and sewage is an important item, for careless janitor-work may be an important factor in disseminating disease through dust.

The arrangement and care of toilets is of exceptional importance.

The maintenance of a pure water supply, with particular reference to the abolition of the common drinking-cup, needs no argument for its support.

The remedying of such sanitary defects as will be discovered by a sanitary survey will serve to make the environment of the child in the schoolroom conducive to health.

To ascertain the physical condition of each individual child requires a systematic *physical examination* for the purpose of discovering any physical defect which may hamper his mental progress, render him physically inefficient for work in later years, or may be a source of danger to others.

Some of the more common defects which will be found are defects of the eye, ear, nose and throat, and teeth. Also disorders of digestion, malnutrition, nervous disturbances, and heart and lung affections.

Defective vision is a very common source of inefficiency. The far-reaching results of neglected eye-strain, which renders study difficult or positively painful, is a common cause of retardation and truancy. The child with defective hearing is hampered in his class-work and is frequently misjudged as being inattentive.

Enlarged and degenerate tonsils and adenoids we recognize as potent factors in the development of disease. The tonsils are dangerous portals of infection, affording entrance to tuberculosis and rheumatic infection. The rôle of adenoids in the cause of middle-ear infections and deafness, as well as serving as portals of infection and causing deformities of the palate, teeth, and chest, is too well known to need further elaboration. From an educational point of view, however, adenoids are especially important because of the condition of mental sluggishness, which is a common symptom of their presence. No surgical procedure produces more brilliant results than are often seen after removal of adenoids, transforming an apathetic, sluggish, apparently stupid child into one of normal appearance. Defective teeth are known to play no small part in causing digestive disturbances and auto-intoxication.

Digestive disturbances, malnutrition, nervous disorders, etc., all render the pupil unfit for the mental work required of him in school, as well as lessening his chances of being physically vigorous when thrown on his own resources in the battle of life.

The contagious diseases, such as the exanthemata, diphtheria, tuberculosis, the common colds and coughs, conjunctivitis, and skin disease, are very important causes of inefficiency in our schools. This comes not only through the loss of time and health to the individual pupil, but to the others with whom he may come in contact, who either contract contagion or stay away from school to avoid it. Much time is lost through the closing of schools because of epidemics.

The common colds are by no means as simple affairs as they are often thought to be. The various pus cocci and the influenza and pneumonia germs which cause these infections, besides being actively transmissible, are responsible for all manner of secondary infections of the accessory sinuses, middle-ear, and bronchial tubes.

Mention should also be made of such contagions as conjunctivitis and different skin diseases which are so liable to be spread from the school as a center of distribution.

Whenever physical defects of any kind, or the presence of contagion, are discovered, the parent should be notified at once. If contagion is found the child must be excluded from school to avoid further spread of the disease, and the parent notified, so that proper control may be exercised in the home, where, if necessary, the authority of the health officer may be exercised.

In most instances physical defects, notably those of the eye, ear, nose, and throat, exist without the knowledge of the parent, who is thus given for the first time the opportunity to give the child necessary medical attention.

The investigation of the conditions referred to has great practical value in educating children along sanitary lines. They become familiar with the meaning of infection and how to avoid it, and learn many other valuable lessons in personal hygiene, which they would not get from the ordinary course of study.

The lessons thus learned are carried home, and the school becomes a center for radiating the principles of health, instead of disease.

Systems of medical inspection, more or less thorough, are carried out in practically all the countries of continental Europe and England and in the larger cities of the United States. In a few states provision is made for a general medical inspection. The Russell Sage Foundation, which has made an exhaustive study of the conditions present in the public schools of the United States, and is in a position to speak authoritatively, makes the statement that seven children out of ten need some form of treatment.

Three out of ten need treatment for defective eyes; two out of ten need treatment for diseases of the nose, throat, or ears; and seven out of ten need treatment for bad teeth.

They find that simply notifying the parents of the presence of defects with the advice that the child receive treatment results in having the child treated in about one case out of ten. If parents do not respond to the first notice, further notice is given, and if this does not succeed a visiting nurse calls at the home and explains the importance of the matter to the parents, at the same time making observations as to the home surroundings and giving advice as to hygienic measures. In this way about nine-tenths of all cases reported are given the needed attention.

In the fall of 1911 this subject was discussed at a meeting of the Seventh District Medical Society of this state, and a committee was delegated to confer with the Board of Education of Sioux Falls with the view of establishing a system of medical inspection.

While the Sage Foundation has determined that satisfactory supervision, including physical examinations, sanitary surveys, regular visits, and the control of epidemics can be carried out for fifty cents per capita, the Board of Education did not feel able to attend to the matter of compensation at that time, so the work was done by a volunteer staff of inspectors appointed from members of the Society. The writer was appointed chief of the staff, and the work was carried on as well as possible with a volunteer staff composed of busy men whose time was taken up with regular professional duties. The work was systematized by the use of the following blanks:

1. Teacher's Report and Physical Examination.
2. First Notice to Parents.
3. Second Notice to Parents.
4. Scholarship Record and Physical Record.
5. Exclusion Card.
6. Monthly Inspector's Report.

Blank 1 is filled in by the teacher, who notes thereon such signs of physical defects as she may observe; for example, mouth-breathing, deafness, bad breath, deformed teeth, cough, colds, headaches, squinting, sore eyes, bad behavior, inattention, delinquency, skin eruptions, and signs of contagion. This blank is presented to the inspector by the pupil to be examined. The inspector notes thereon such findings of defects as are discovered.

Blanks 2 and 3 are in the form of notices to parents, informing them that the child has been examined and found to be in need of treatment, for which they are advised to consult their own physician, specialist, or dentist. Explanation is made that the defects found interfere with good work in school and should not be neglected. A note at the bottom of these blanks calls attention to the importance of consulting a physician for eye defects, otherwise many of the eye-cases would fall into the hands of jewelers with glasses to sell.

Blank 4 has on one side a record of the pupil's scholarship covering a period of nine years. The reverse shows the physical record for a corresponding period, thereby making it possible to correlate the physical and mental development of the pupil.

Blank 5 is used to notify parents of the existence of a contagious disease, for which reason the pupil must be excluded from school until he has recovered, and also provides a section for Certificate of Health which must be properly endorsed by the inspector before the pupil can be readmitted after exclusion.

Blank 6 gives a tabulated report of examinations and exclusions.

Blank 1 is given to the teachers a week in advance of the first visits of inspectors. Cases which show marked signs of defects noted by the teachers are examined first, and the others in turn. Each pupil is given a physical examination at some time during the school year.

The inspectors make at least one visit each week to the schools under their supervision, and at such other times as may be necessary in the opinion of the principals.

While our work in Sioux Falls has necessarily been incomplete, as is to be expected from a volunteer system, the results have been such as to amply justify its continuance, and that on a fair basis of compensation.

The following data represent the results available from reports received from schools in the grades below high school. The report covers only eye, ear, nose, and throat cases, although quite a number of heart, lungs, and skin cases were observed, and a few nervous and mental cases:

Number of pupils examined......	1,818
	Per cent.
Eye defects....................	15.0
Ear defects....................	2.2
Nose and throat defects..........	36.0
Notices to parents...............	38.0
Cases treated as result..........	10.0
Treated and improved...........	87.0

Most of the teachers have noted a marked improvement in the school work of pupils who were treated, in many instances effecting a marked change in the pupil's scholarship.

With very few exceptions the attitude of the parents to the work has been sympathetic and appreciative.

When the parents become acquainted with the need of health supervision, and see for themselves the benefits derived from it, they will insist upon it.

In dollars the result of our work in Sioux Falls is represented by rendering effective the expenditure of $10,000 of school funds. There is an annual expenditure of $130,000, of which $10,000 had been spent in trying to get results in educating pupils who had physical defects which retarded their progress. Our medical inspections have made it possible to remedy those defects and make the money expended effective.

In Minnesota the State Board of Health is seeking to establish a system of health supervision covering the entire state, placing the work in the hands of inspectors who devote their entire time to the districts to which they are assigned. They believe that this will be the most effective method of controlling epidemics, which will work not only a great saving for the school system, but an enormous amount in the loss of time and life which results from communicable diseases.

In our own state there is great need of work of this kind, and the writer would urge it upon the profession as a duty we owe the public to take this matter up with the school authorities at once.

The Superintendent of Public Instruction is heartily in sympathy with the work, as is every intelligent educator, so that the opportunity for co-operation between medical men and educators is too great to be passed by.

THE ROLE PLAYED BY THE SEXUAL ORGANS IN WOMEN IN THE PRODUCTION OF BACKACHE*

By J. L. Rothrock, M. D.

ST. PAUL

The investigations which have been made, especially within the last decade, on the phenomena of pain in the different regions of the body, have given to this subject a new interest, and have made it necessary to revise many of the formerly accepted views. Especially is this so as regards pain in the back, and I need therefore offer no apology for presenting a subject for discussion which, at first sight, may seem trite and commonplace.

Owing to the limited scope of this paper and the many causes responsible for pain in the back, it will be necessary to pass over those well-established causes due to definite organic disease, and it is my purpose to consider, more especially, the part the genital organs in women play in the production of this symptom, as well as the more obscure backaches for which no definite cause can be found.

In the consideration of backache in women, we must take into consideration factors not operative in the male sex. The sexual organs have long been held responsible for the backache which women so frequently complain of, and, in the presence of definite pathological changes in those organs, with reason. A closer analysis, however, shows that many obscure backaches, in the absence of recognizable changes in the pelvic organs and which have hitherto been interpreted as reflexes, must find their solution in investigations along other lines; therefore, while disturbances of the sexual organs must still be held responsible for a considerable percentage of backaches, the number will be found to have perceptibly diminished when analyzed in the light of recent investigations.

The conditions most commonly associated with backache, in women, located in the sexual organs, are chronic metritis, lacerations and erosions of the cervix, backward displacements of the uterus, especially when fixed by adhesions, old inflammatory changes in the tubes and ovaries and parametrium, especially parametritis posterior, in which pain in the back is the most prominent symptom and is almost never absent, follicular degeneration of the ovaries, tumors of the uterus or ovaries, especially when they have reached sufficient size to block the pelvis, cancer of the uterus or ovaries in the advanced stage, after infiltration of the parametrium has taken place.

I am quite aware that there is some difference of opinion with regard to the symptoms occasioned by simple uncomplicated retrodisplacement of the uterus, and long ago Vedeler (*Archiv. f. Gynak.*, 1886), after an analysis of a considerable group of cases, concluded that uncomplicated retrodisplacements produced no symptoms, but that the symptoms from which such patients complain, were to be interpreted as wholly dependent upon disturbances of the nervous system. Others have expressed similar opinions more recently.

From present information it does not appear that Vedeler's views are supported by facts. While it is true that occasionally a patient may have a retrodisplacement without backache, especially if the retrodisplacement is of recent origin, and again the correction of a displaced uterus may fail to give relief, such cases are, I am sure, so much in the minority as to be regarded as exceptions to the general rule. Personal observation leads me to conclude that most patients with backward displacements of the uterus do suffer from backache, and if long-continued, practically every patient, sooner or later, complains of this symptom.

The cause of the pain referred to the back, is to be explained by the passive congestion which the displacement occasions, through venous stasis of the vasa nervorum. It is this same cause that produces the backache which is so commonly present in chronic metritis, the back being only one of the many directions to which the pain radiates.

Tumors of the uterus or ovaries, if of sufficient size to block the pelvis, cause pain by direct pressure on the sacral plexus of nerves or by venous stasis, or both.

Old inflammatory processes of the parametria produce pain by pressure on the sensory-nerve filaments, as well as by venous stasis. The excruciating pain referred to the back in advanced carcinoma of the uterus, is the result of pressure on the nerves by the infiltration, which, in some instances, has been found to extend along the sheaths of the nerves.

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*Read before the Minnesota Academy of Medicine.

It is probable that in most of the changes in the genital organs which are active factors in the production of backache, venous stasis plays the chief rôle, and is analogous to that resulting from constipation or general visceroptosis.

The backache so commonly complained of in normal women during or just following menstruation and in the few weeks immediately following parturition, is to be compared with the backaches dependent upon other causes that produce pelvic congestion.

After all this enumeration of the causes which are at times responsible for pain referred to the back, there still remains a considerable percentage of women who complain of backache, usually in the sacral region, in whom no abnormality of the genital organs can be discovered. These patients almost invariably, besides backache, complain of other symptoms directly referred to the pelvic organs, such as dragging pains in the loins, extending to the lower extremities, pain in the abdomen, sensitiveness over the abdomen on pressure, either localized or general, exquisite sensitiveness on the slightest manipulation of the uterus on examination, painful menstruation, often with leucorrhea. They are usually poorly nourished, anemic, and nervous, but may be well-nourished even to the point of obesity. This latter class of cases usually complain of scant menstruation, lasting only a couple of days. These patients present the symptom-complex so clearly described by Hegar under the name of "Lendenmarkssymptome," as follows: "Pain and a feeling of weakness in the back, a pulling and tearing sensation in the thighs and legs, weakness of the lower extremities, coccygodynia, anesthesia and hyperesthesia of the introitus vaginæ, painful micturition and defecation." These patients, at the same time, often present symptoms of neuroses in other parts of the body far separated from the genital organs, especially along the distribution of the nerves which spring from the upper portion of the spinal cord. Among these he mentions, "intercostal neuralgias, mastodynia, cardialgia, vomiting, globus, aphonia, cough, asthma, delirium cordis, etc."

Hegar estimated that fully 15 per cent of his clientele presented these symptoms, in whom no pathological changes in the genital organs could be found, and Kroenig states that from his experience this estimate is far too low.

There is no doubt that this class of patients has long been misunderstood by the profession and has been the subject of much misdirected treatment, both local and surgical, under the mistaken idea that the symptoms which these patients present were reflexes proceeding from the genital organs. I well recall a protest against this tendency uttered by my former teacher Dr. Goodell more than twenty years ago, which seems to have gone unheeded and in which he expressed himself in the following words: "The crying medical error of the day is, in my opinion, the mistaking of nerve disease for womb disease. From this widespread delusion it has come to pass that no organ in the human body is so overtreated and, consequently, so maltreated as the womb. Fine lesions of the nerve ganglia are hard to make out, however exacting their symptoms; but the womb, unfortunately, being reachable, seeable, and directly treatable, is charged with almost all the ills that the female flesh is heir to; and it is too often made the scapegoat for headaches and nape-aches, for spine-aches and backaches and for various other so-called uterine symptoms which may be due solely to nerve-exhaustion or malnutrition of nerve centers and not to reflex action from some real or supposed uterine disorder. Then, again, forgetful that the imponderables are great forces in nature, that a single stimulus to unstable nerve-molecules will awaken many reflexes, we overlook the tyranny of women's oversensitive organization and underrate the influence of nerve perturbations or of psychical disturbances."

Within the last decade particular attention has been directed to this class of cases, and we are greatly indebted to Lömer, Winsheid, Binswanger, Theilhaber, Kroenig, and others for the service they have rendered in pointing out the fallacies of the views formerly held and in placing the interpretation of these symptoms upon a rational basis. It must be remembered that pain is a very variable symptom, depending upon the stability of the nervous system of the individual. We cannot therefore estimate pain by any fixed standard, for pain is in direct proportion to the disturbances of the sensibility and depends upon the irritability of the receptory apparatus.

Albrecht (*Centralblatt f. Gynak.*, 1911, No. 2), following Walthard, divides these cases into two groups: (1) the cortical, or those of central origin, in which he classes the psychoneuroses including neurasthenia, hysteria, psycasthenia, hypochondria, and melancholia; (2) the subcortical, or those of spinal origin, under which he classes the neuralgiform pains, due to general nutritional disturbances and disturbances of metabolism, as chlorosis and anemia following exhausting disease or severe loss of blood, disturbance of the internal secretions, as infantalism, thyroidism, as in Graves' disease, diabetes, and finally disturbances following cessation of the ovarian function. He also includes under this group toxic conditions, as alcohol, tobacco, and bacterial toxines.

While neurasthenia is usually general, in these patients the spinal variety is most accentuated, hence, following Head, this variety has been known as spinal irritation or myelasthenia. Kroenig states that in general neurasthenia spinal irritation is almost never absent, since the symptoms in these patients center around the genital sphere, it naturally places the genital organs in the foreground as an etiological factor, and consequently these patients are more liable to fall into the hands of the surgeon than the neurologist, often, it must be confessed, to the misfortune of the patient. Lömer states that the drawing pains in the back of the neck and pain over the sacrum, are almost pathognomonic of neurasthenia and the frequency with which this combination of symptoms is present in neurasthenics, goes far to confirm his statement.

The rôle which suggestion plays in the production of backache in susceptible individuals, should not be lost sight of. For example, I have under observation a patient whose mother is a confirmed neurasthenic and whose constant pressing symptom is pain over the sacrum. A visit of this young woman to her mother is sufficient to arouse in her a similar backache, which, fortunately, yields speedily to suggestion, coupled with one or two simple local treatments, although she has no pelvic lesions of importance. The temporary relief from symptoms which local treatment affords these patients in whom the pelvic organs are normal or present only slight or imaginary changes, is readily explained on the theory of suggestion; yet the very fact that a few simple local treatments do give relief, has tended to obscure our vision and has caused us to attach undue importance to slight pathological changes in these organs, meanwhile overlooking the real cause of the trouble.

When we come closely to analyze the symptoms complained of by the average woman in whom examination reveals abnormalities of the sexual organs, we are impressed with the fact that there is as a rule nothing characteristic in the symptoms as indicating the nature of the trouble, and that, after all, the symptoms which are in the foreground are, in the main, symptoms of disturbed function directly traceable to the nervous system and do not differ very materially from the symptom-complex presented by those patients in whom examination fails to reveal any tangible pathological changes in the genital organs.

It must not, however, be concluded from this that lesions present in the genital organs have no bearing on the general health. There is abundant clinical evidence to show that in many instances these pathological changes form the sole basis for ill health. The proof of this lies in the familiar clinical observation that, after the correction of these lesions, whether it be repair of a lacerated cervix or the restoration of a uterine displacement, these patients are permanently cured, whereas to ignore these changes and to proceed along conservative lines, will, at the most, give but temporary relief. On the other hand, the fact that surgical measures sometimes fail to give relief, does not prove that these lesions of the genital organs are without significance. It is in just this class of cases in whom slight or moderate pathological changes of the genital organs are present, that it is at times most difficult to form a correct clinical estimate, for such patients are frequently the subjects of general neuroses, or have long suffered from nutritional disturbances.

Before forming an estimate of the exact condition of this class of cases, it is always wise, after taking the measure of the pathological changes in the genital organs, to weigh carefully their nervous symptoms. There is no doubt that failure to recognize the influence which the general condition of the patient may bear to her symptoms, and failure to follow the operation with appropriate treatment for the purpose of improving the general health, are responsible for many of the disappointments in surgery as applied to the genital organs in women.

FOREIGN BODY REMOVED FROM BIFURCATION OF TRACHEA BY LOWER BRONCHOSCOPY

By E. W. Benham, M. D.

MANKATO, MINN.

Baby J. L., aged thirteen months, was brought to us November 14, 1911, by Dr. W. H. Gaugh, of Granada, Minn., with the following history:

Six days ago the baby was given some shelled peanuts by its aunt. At about this time the mother noticed that the baby began to have some disturbance of breathing, but paid no attention to the matter until five days later, when Dr. Gaugh was called, to whom the mother stated that the baby had had a cold for several days, the peanut incident having been almost forgotten. At Dr. Gaugh's visit the baby was dyspneic, and after careful examination he made a diagnosis of probable foreign body in the air passages.

At our examination, breathing was found to be rapid, with an occasional short cough, no cyanosis, and the general condition good. Temperature, normal. There were coarse râles over the right lung, and the catchy, irregular respiratory sounds suggested obstruction in right bronchus.

An *x*-ray examination failed to show anything.

The history and physical condition of the patient, after eliminating other possible causes of the dyspnea, seemed to substantiate Dr. Gaugh's diagnosis, and it was believed safer to operate than to risk complications under expectant treatment, while waiting for the possible disintegration of the peanut.

Under chloroform anesthesia nothing could be found in the larynx. A tracheotomy was then performed and a sufficient opening made to admit the smallest-sized bronchoscope. Passing this instrument downward the foreign body was reached, and by means of the electrical illumination could be plainly seen, lying at the bifurcation of the trachea. Although the object could be distinctly made out through the bronchoscope, it proved very elusive to the grasp of instruments, and it was only with much difficulty that I was finally able to dislodge it, when it was found to be one lateral half of a common-sized peanut, and was quite firm, showing very little evidence of beginning disintegration.

A tracheotomy-tube was introduced, to be removed the next day, a hypodermic of atropine given, and the air of the room kept saturated with steam.

The baby stood the operation well and made a good recovery, though the temperature was elevated at times.

The question arises in infants as to whether the operation should be an upper bronchoscopy through the mouth or by introduction of the bronchoscope through a tracheotomy wound. The dangers of post-operative pneumonia are believed by many to be greater in the upper method than through a clean tracheotomy wound, owing to the carrying in of mouth infection. Kummel, in the *Deutsche medizinische Wochenschrift*, recently reports four cases of upper bronchoscopy in young children with one death, due to excessive subglottic swelling following the operation and necessitating subsequent tracheotomy. These dangers are sufficient in his opinion to make bronchoscopy through a tracheotomy wound the operation of choice in children under five or six years of age.

Operations of this character in infants present considerable difficulty, as the lumen of the bronchoscope used is necessarily small and offers very little room for the manipulation of instruments. In the management of the tracheotomy-wound it is advisable to prevent too early closure of the superficial parts, to avoid the infolding of granulations which may later cause tracheal obstruction.

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AUGUST 1, 1912

THE MEETING OF THE MINNESOTA STATE MEDICAL ASSOCIATION

Duluth is to have the pleasure, honor and burden of entertaining the State Medical Association August 14th and 15th. The House of Delegates meets on the afternoon of August 13th, at 2 o'clock, and the general meeting place is at the Commercial Club in Duluth.

The program committee, of which Dr. W. H. McGee of Duluth is chairman, with Dr. J. M. Armstrong of St. Paul, and Dr. Thos McDavitt, the Secretary of the Association, has sent the program out and it presents a very attractive appearance. It contains thirty-two papers, of which sixteen are contributed by the Twin Cities. Evidently the present program committee has found the same difficulty that other committees have encountered in getting up a program which will represent the entire state. The Editor of THE JOURNAL-LANCET has commented upon this condition and again suggests that the men from the country should take a more active interest in the meeting than they have done heretofore.

The general meeting opens with the President's address and is followed by a succession of interesting papers which will be found in another column.

The oration on Medicine, Wednesday, August 14th, at 1:30 P. M., is by Dr. J. A. Witherspoon of Nashville, Tenn., the President-elect of the American Medical Association. This will give the Minnesota members an opportunity to meet the new president personally, and to learn something of the man and his work.

On Wednesday evening at 8:30, after an automobile drive around the city, Dr. Taliaferro Clark, Secretary of the United States Public Health and Marine Hospital Service, of Evansville, Ind., will describe his study of trachoma in northern Minnesota.

On Thursday afternoon at 1:30, the oration on Surgery will be delivered by Dr. A. J. Ochsner of Chicago. Those who know Dr. Ochsner personally, and who have heard him speak, and who have observed him in his clinics, anticipate a rare treat.

Thursday night the St. Louis County Medical Society will give a boat ride and a buffet luncheon at 6:30. The return trip is supposed to be made in time for the members to take the 11 o'clock train for home. Those who have been on these boat rides and have partaken of the so-called buffet luncheon will anticipate the usual jollification, for St. Louis County medical men do nothing by halves. They do a good thing and then they double it up and give you more. It would be just as well if your digestion were put in proper order before attending the boat ride.

The remaining part of the program covers a very wide field in medicine and surgery, and many of the subjects will appeal to all men, both city and country practitioners.

The program committee is to be congratulated upon its efforts, and the success with which it combines so many interesting topics.

THE RESIGNATION OF DR. H. W. HILL

The Minnesota State Board of Health loses one of its busy and popular workers in the resignation of Dr. Herbert W. Hill of the Division of Epidemiology.

Dr. Hill has done much for the State of Minnesota in his work as investigator, lecturer, and writer, and the State Board of Health regretfully accepted his resignation. The State of Minnesota does not, however, lose Dr. Hill's influence for some time, as he is to continue his series of articles on the New Public Health which have been appearing in our columns. These articles have been exceedingly interesting and instructive, and have been widely copied and quoted;

and, in spite of the increased work which Dr. Hill assumes, he will still think of his Minnesota affiliations.

Dr. Hill is to become the director of the Institute of Public Health and Chief of the Medical Faculty in London, Ontario. This position is a decided advance, as it promises more in the line of promotion and is distinctly more remunerative than anything Minnesota can offer him.

The Institute of Public Health of London, Ontario, is backed by the Canadian Government, and Dr. Hill has a five-year contract with them, so that for the next few years his position is permanent, and his opportunity for advance is evidently secure.

Dr. Hill will not only be kindly remembered by medical men in the Northwest with whom he came in contact, but by the public at large, and particularly in his capacity as advisor in the rural districts throughout the State of Minnesota. He was a versatile writer, a good speaker, and had a very happy faculty of making friends with his audience.

The epidemiological division of the State Board of Health will continue the work that Dr. Hill outlined, and will be directed by his successor, Dr. A. J. Chesley, who has been associated with Dr. Hill for several years and who is thoroughly competent to supervise the Division.

The Journal-Lancet and its readers congratulate Dr. Hill on his promotion, and wish him success in his new field of work.

MINNEAPOLIS THE MEETING PLACE OF THE AMERICAL MEDICAL ASSOCIATION

The General Committee which is to have charge of the meeting of the American Medical Association in June, 1913, has already been organized. The Hennepin County Medical Society met and elected Dr. Frank C. Todd as chairman of the General Committee, and he has appointed chairmen for the sub-committees which seem to embrace all sorts of possibilities and probabilities in the way of attention and treatment of the delegates.

The general officers of the American Medical Association have much to do with the work of the committees in the city which entertains the Association and consequently is in constant touch with the chairman.

The organization at this early date is imperative, and unless one has had to do with such business matters he does not realize the enormous amount of energy and the expenditure of time in preparing for a large convention. There has been a great deal of criticism found with the Atlantic City meeting, not that the organization on general lines was not complete, but there seemed to be little effort to provide special entertainment for the delegates in sections. The physicians of Atlantic City are not to blame for this, nor is anyone so far as we can discover. It is simply a general indifference as to the success of the various sections. Minneapolis, however, expects to do her duty, and she calls to her aid all of the forces in the medical profession, and the chairmen of the sub-committees will select from their friends and acquaintances those that they deem most helpful. No one need feel personally affronted if not asked to serve on a committee, for that fortunate individual will escape many meetings and many worries, for every member must expect to spend a good deal of time in the work.

One of the most important committees that the chairman has appointed is that on finance. This committee will probably incur the enmity of some of the medical men of Minneapolis who are not in sympathy with conventions, medical or otherwise; however, the men who have been already approached have signed their names for such sums as they thought they could afford. No man of prominence in Minneapolis must forget that his success is due to his acquaintance among his fellow medical men, and doubtless a great deal of his business comes from these same sources, consequently he is in honor bound to contribute a share proportionate to his means and income to entertain his brethren from other states.

To entertain the large body which is expected at the next meeting of the American Medical Association (the minimum probably of 3,000 will register, and the maximum probably of 5,000 who will accompany the delegates) means that it is going to cost a great deal of money. Los Angeles last year spent about $35,000. Fortunately for their finance committee, Mr. Busch came to the assistance of the committee, opened his wonderful gardens, and the luncheon, it was estimated, cleared $15,000, and the remaining $20,000 was raised by the medical profession. When the American Medical Association met in St. Paul ten or eleven years ago, the attendance was fairly large for a western meeting, and it cost about $20,000 to entertain the Association. It will hardly cost less than that sum next year. There is, however, a growing feeling that too much entertaining is undesirable, and that we burden our visitors by providing set things for them to do when the majority would like to do as they please.

Aside from the social entertainment of the delegates and their friends, there is a very large necessary expense which must be met. The details of such committee work is not very much appreciated by the outsider, neither does he see the necessity of paying for expert help and for many other aids which go to make the meeting a thorough success.

The hotel accommodations in Minneapolis and St. Paul will certainly take care of our visitors, and it is a good time for every Minnesota man who expects to attend the Association to urge his medical friends and acquaintances from other states to come to Minnesota to see its wonderful harbors at Duluth, to see the glorious country in the interior of the state, and to see what strides Minneapolis and St. Paul have made in the last ten years. A good many of the hard-shelled Easterners will hesitate about taking such a *long* trip, for they are so hampered by tradition and environment that they feel that to go without the boundaries of their states is like going into a foreign land, and it is about time some of them realize that there are other cities and states than their own.

The Journal-Lancet will publish, from time to time, the progress of the committee work, and such other items of interest as may be found necessary. The physicians who read The Journal-Lancet are urged to diffuse the information among the country papers that the American Medical Association is to meet in Minneapolis in 1913, so that the people may know that this great organization is to be brought to the middle East or middle West, viewed from either direction.

THE DULUTH MEETING

The time, the weather, and the place promise to make this year's meeting of the Minnesota State Medical Association a delightful and a profitable one. The trip to Duluth is just long enough to furnish pleasure and not to weary. In order that the men who go from and those who go through the Twin Cities may travel together, the new fast train of the Great Northern Railway has been designated as "the official train." It leaves St. Paul daily at 2:00 p. m. and Minneapolis at 2:30, reaching Duluth at 6:55. This will be the favorite train of most of the physicians, as the time of leaving and arriving is the most convenient for most men, and then the train itself is a delight. The Great Northern runs two other daily trains, one leaving St. Paul at 9 a. m., reaching Duluth at 1:40 p. m., and another train leaving St. Paul at 11:10 p. m., reaching Duluth at 6:30 a. m. Each of these trains leaves Minneapolis a half hour later.

The headquarters of the Association will be at the Spalding Hotel, and this arrangement is ideal for many reasons. The meetings will be held near the hotel, and as practically all members of the Association will have rooms at the Spalding, the men will be thus kept together both during the scientific sessions and the social hours. The Spalding is also a first-class hotel, and reecntly a large sum has been expended in improvements. It has 300 rooms, half of them with baths. The usual manufacturers' exhibits will be in the hotel.

MISCELLANY

Program of the Annual Meeting of the Minnesota State Medical Association, August 14 and 15, 1912, Duluth.

Wednesday August 14th, 9 A. M.

1. President's Address, Dr. Haldor Sneve, St. Paul.
2. Post-Rheumatic Ankylosis, Dr. R. St. J. Perry, Parker's Prairie.
3. The Phthalein Test in Certain Renal Conditions, Dr. H. L. Ulrich, Minneapolis.
4. Surgical Notes on Goitre, Dr. A. Schwyzer, St. Paul.
5. Tinnitus Aurium, Dr. C. L. Larson, St. Paul.
6. Surgery of the Prostate, Dr. G. G. Eitel, Minneapolis.
7. An Improvement in the Technic of Suprapubic Prostatectomy Which Reduces the Time of Convalescence and Insures a Good Functional Result, Dr. Edward S. Judd, Rochester.

Wednesday, August 14, 1:30 P. M.

1. Oration on Medicine, Dr. J. A. Witherspoon, President-Elect of the American Medical Association, Nashville, Tenn.
2. The Smith Operation for Cataract, Dr. John C. Harding, St. Paul.
3. Intestinal Stasis with Special Reference to the Lane Short-Circuit Operation, Dr. R. O. Earl, St. Paul.
4. Dr. Laura A. Lane, Northfield, State Chairman, Committee for Public Health Education among Women, American Medical Association.

5. The Diagnosis of Tuberculosis of the Kidney, Dr. A. C. Strachauer, Minneapolis.
6. Semeiotic Significance of Pathologic Findings in Infant Feces, Dr. C. P. Robbins, Winona.
7. Surgery of the Gall-bladder and Ducts, Dr. R. C. Dugan, Eyota.
8. Oral Infection in Relation to Constitutional Infection, Dr. T. B. Hartzell, Minneapolis.

Wednesday, August 14th, 8:30 P. M.

1. Tracoma in Northern Minnesota, Dr. Taliaferro Clark, Surgeon U. S. Public Health and Marine Hospital Service, Evansville, Indiana.

Thursday, August 15th, 9 A. M.

1. Surgery in Country Hospitals, Dr. L. L. Sogge, Windom.
2. Bacteriology of an Epidemic of Paratyphoid Fever, Dr. E. T. F. Richards, St. Paul.
3. Diagnosis of Diseases Associated with Enlargement of the Spleen, Dr. H. Z. Giffin, Rochester.
4. Correction of Uterine Prolapsus, Dr. A. W. Abbott, Minneapolis.
5. Parotiditis—Its Complications, Dr. J. C. Jacobs, Willmar.
6. Abdominal Incisions, Dr. R. E. Farr, Minneapolis.
7. Experimental Work in Blood-Vessel Anastomosis, Dr. J. F. Corbett, Minneapolis.
8. Some Very Acute Cases of Appendicitis in Childhood, Dr. N. L. Werner, Red Wing.

Thursday, August 15th, 1:30 P. M.

1. Oration on Surgery, Dr. A. J. Ochsner, Chicago, Ill.
2. Moderate Degrees of Pelvic Contraction and their Obstetric Problems, Dr. F. E. Leavitt, St. Paul.
3. Strangulated Hernia in Early Infancy, Dr. A. N. Collins, Duluth.
4. Technic of Anesthesia, Dr. Geo. E. Putney, Paynesville.
5. Rectal Section for the Accumulation of Pus in the Cul-de-sac of Douglas, Dr. A. MacLaren, St. Paul.
6. Eclampsia: Its Cause and Treatment, Dr. Wm. Reid, Deer Wood.
7. Vaginal Celiotomy in Certain Cases of Eclampsia, Placenta Previa, and Pernicious Vomiting, Dr. H. C. Cooney, Princeton.
8. Notes on the Treatment of Septic Endocarditis, Dr. S. P. Rees, Minneapolis.

REPORTS OF SOCIETIES

WABASHA AND GOODHUE SOCIETIES

The above Societies met at Lake City on July 11th, each Society holding a separate business meeting in the morning, followed by a joint meeting in the afternoon.

At the joint meeting papers were read as follows: "Differential Diagnosis of Diseases of the Upper Right Quadrant of the Abdomen," Dr. M. J. Shaughnessy, Wabasha; "Estimation of Blood-Pressure and Its Value from a Diagnostic Standpoint," Dr. P. McKittrick, Eau Claire, Wis.; "Mitral Insufficiency," Dr. D. P. Dempsey, Kellogg. "Demonstration of Results in a Case of Extensive Burns, with Remarks on Treatment," Dr. E. H. Bayley, Lake City.

At the meeting of the Wabasha Society in the morning, Dr. A. A. Rankin, Zumbro Falls, was elected to membership; and the following officers were chosen: President, Dr. D. P. Dempsey, Kellogg; vice-pres., Dr. W. B. Heagerty, Mazeppa; sec'y-treas., Dr. W. F. Wilson, Lake City; delegate, Dr. M. J. Shaughnessy; alternate, Dr. W. J. Cochrane, Lake City; censor (3 yrs.), Dr. D. S. Fleischhauer, Wabasha; Committee on Public Health, Dr. E. H. Bayley, Chairman, Lake City; Dr. D. S. Fleischhauer, Wabasha; Dr. J. A. Slocumb, Plainview.

W. F. Wilson, M. D., Secretary.

CAMP RELEASE DISTRICT SOCIETY

The Society met at Dawson on July 11th.

Papers were read as follows: "Refinements of Diagnosis Possible in General Practice," Dr. John P. Schneider, Green Isle; "Epidemic Septic Sore Throat," Dr. W. Z. Flower, Gibbon.

The following were elected delegates to State Association: Dr. D. N. Jones, Gaylord, and Dr. E. M. Clay, Renville; with the following as alternates: Dr. G. E. Strout, Winthrop, and Dr. F. W. Penhall, Morton.

Dr. Thorvald Peterson, of Gaylord, and Dr. F. Koren, of Madison, were elected to membership.

R. D. Zimbeck, M. D., Secretary.

THE BLUE EARTH VALLEY SOCIETY

The Society held its tenth semi-annual meeting at Fairmont, July 11, with fourteen members present, Vice-President Dr. R. C. Hunt, presiding.

Dr. H. P. Johnson reported three cases of appendicitis, and Dr. G. W. Dewey exhibited a very interesting apparatus for treatment of fractures of the lower extremities.

The Society went on record as favoring the original Owen bill and instructed its Secretary to write to Representative Hammond and our two senators to favor it.

J. A. Broberg, M. D., Secretary.

THE UPPER MISSISSIPPI SOCIETY

Bemidji, Minn., July 16th, 1912

The Society met in Bemidji on July 16, with twenty-one members present. Papers were read as follows: "Things of Interest Gathered at the

A. M. A. Meeting," Dr. C. R. Sanborn, Bemidji; "A Few Irregular Cases of Pneumonia," Dr. E. H. Smith, Bemidji; "Report of a case of Gallstones in a Child of Four Years," Dr. A. W. Ide, Brainerd.

Application for membership was received from Dr. E. A. Boucher, of Mizpah.

The next meeting will be held at Brainerd.

G. H. Lowthian, M. D., Secretary.

RICE COUNTY SOCIETY

The Society met at Northfield on July 19th, with fourteen members present. A banquet at Northfield Hotel was followed by a business and social meeting and "Smoker."

The election of officers, postponed from last meeting, resulted as follows: President, Dr. A. C. Rogers, Faribault; 1st vice-pres., Dr. Warren Wilson, Northfield; sec'y-treas., Dr. Fred U. Davis, Faribault; delegate, Dr. W. A. Hunt, Northfield; alternate, Dr. P. A. Smith, Faribault; censor, Dr. F. S. Warren, Faribault.

A committee to investigate illegal practice in Rice County and a Committee on Public Health were appointed.

F. U. Davis, M. D., Secretary.

NEWS ITEMS

Dr. A. J. Stowe has moved from Minneapolis to Rush City.

Dr. Louis Kane, a recent graduate, has located at Reynolds, N. D.

Dr. D. M. Strang, of Northfield, is doing postgraduate work in Chicago.

Dr. Theodore Satersmoen has moved from Pine River to Pelican Rapids.

Dr. Olaf Kittleson, a 1912 graduate of the State University, will locate at Badger.

Dr. Bernard Nickerson has succeeded Dr. J. C. Staley in practice at Mandan, N. D.

Dr. John E. Hetherington has moved from Reynolds, N. D., to Larimore, in the same state.

Fourteen applications for license to practice in South Dakota took the July examination.

Dr. David R. Johns, of Fair Haven, is fitting up the Star Hotel of that place for hospital uses.

Dr. H. H. Hewitt, of Freeport, has sold his practice to Dr. O. H. Warner, of Minneapolis.

The hospital at Cando is to be reopened, and will be under the charge of a competent manager.

Dr. A. Milton Cox, of Chicago, has become house physician at the Bismarck (N. D.) Hospital.

Dr. W. G. Eisenman, of the Rood Hospital at Hibbing, has gone to the Rood Hospital at Chisholm.

Dr. George A. Holdridge has moved from Browerville to Foley, where he formerly practiced.

Dr. G. A. Stevenson has resumed practice at Albert Lea after a vacation of two years spent in farming.

Dr. A. M. Hanson, formerly of Red Wing, is house physician of the Seattle (Wash.) City Hospital.

Dr. C. G. Kelsey has moved from Minneapolis to Hinckley, where he will be associated with Dr. E. Stephan.

Dr. Thomas R. Martin, of Duluth, was married last month to Miss Jessie Edgerton, of the same city.

Dr. A. C. Tanner, of Federal Dam, has become a member of the staff of the Rood Hospital at Hibbing.

Dr. John Turnbull, of Karlstad, was married last month to Miss Anna Alice Youngcrans, of Twin Lakes.

Dr. John E. Sawyer, who practiced twelve years in St. Paul, died last month in Chicago at the age of 57.

Dr. Edward F. Dixon, of Dayton, Mont., was married last month to Miss Bernice Black, of Kalispell, Mont.

The Seventh District Medical Association of South Dakota held a well-attended meeting last month at Dell Rapids.

Dr. J. M. Dodd, of Ashland, Wis., has been appointed a member of the Wisconsin State Board of Medical Examiners.

Dr. J. C. Staley, of Mandan, N. D., has moved to St. Paul and becomes associated with Dr. Warren A. Dennis, of that city.

Dr. J. B. Widemeyer, of Rolla, N. D., has been appointed superintendent of the North Dakota Sanitarium for the tuberculous.

Dr. John M. Edwards, formerly of Mankato, has located in Portland, Oregon, and become associated with Dr. H. F. McKay, of that city.

The Minnesota State Board of Health has passed an order that all cases of ophthalmia neanotorum be reported by the attending physicians.

Dr. Arthur W. Eckstein, a recent graduate of Northwestern, Chicago, has located in St. Cloud, and takes the practice of Dr. Maloy, who has retired.

Dr. C. F. McComb, the coroner of St. Louis County, appointed to succeed Dr. J. A. McCuen, who became mayor, will be a candidate to succeed himself.

Dr. J. C. Shirley, a recent graduate of Northwestern, Chicago, has located in Huron, S. D., and become associated with Dr. F. B. McGarvey, of that city.

Dr. Albert P. Maschger, of St. Paul, died last month at the age of 31 years. Dr. Maschger was a graduate of the University of Minnesota, class of '05.

Dr. J. G. Carney, of Armour, S. D., was married last month to Miss Myrtle Grace Seitz, of the same place. Both bride and groom are 1912 graduates of Creighton.

The Minnesota State Board of Health has defined "inspected milk" and hereafter milk sold under this name must show a count of not over 100,000 bacteria per 1 c. c.

The Cloquet Hospital, which has been under the charge of Dr. Alexander Barcley for the past four years, has been sold by Dr. Barcley to Drs. W. G. Dolan and James Fleming.

Sunnyside Hospital, at New London, was dedicated last month with appropriate services. Dr. Christian Johnson, of Willmar, and Dr. M. O. Oppergaard, of New London, delivered addresses.

Vermillion, S. D., has a hospital of ten rooms, and a well-equipped operating room. It is conducted by Miss Roxie Robbins, a graduate nurse, and is promised the support of the physicians of the city.

The corps of nurses under the medical school inspector of Minneapolis, will be increased by one-half for next year, and about 60 per cent of the pupils in the schools will be under medical inspection.

The annual meeting and banquet of the Alumni of the College of Medicine and Surgery of the University of Minnesota, will be held at the Spalding Hotel in Duluth at 12:30 P. M. on Thursday, August 15th. The entertainment will be in charge of a committee composed of Drs. Linnemann, Rowe, and Haney. A railroad rate of a fare and one-third has been secured for the Duluth meeting.

PRACTICE FOR SALE

A well-established $3,500 practice in a live central Minnesota town, mixed American, German and Scandinavian population, two railroads, will be turned over to purchaser of good well-located residence. Price, $2,500; $1,000 cash; balance time. Scandinavian or German preferred. Address V. H., care of this office.

PRACTICE FOR SALE

An excellent practice in town of 1,000 in southern Minnesota, worth $3,500 to $4,000, will go to purchaser of automobile and office furniture for $1,500. This is a snap and fine opening. Will introduce purchaser. Address B. S., care of this office.

PRACTICE FOR SALE

Will sell my practice for price of office furniture. It pays $3,300 a year; is in one of the best growing towns in Minnesota, with five railroads and seven factories; large packing-plant now going up; rich farming country; fine hospital in the city. Address G. A., care of this office.

INVESTMENT OPORTUNITY FOR A PHYSICIAN

A well-established, and highly recommended Minneapolis institution, in order to increase its efficiency and capacity, offers to a physician an active interest that will require little time and will make a profitable investment for about one thousand dollars. The best of references including THE JOURNAL-LANCET. Address D. M., care of this office.

PHYSICIAN'S RESIDENCE IN MINNEAPOLIS FOR RENT

A physician's residence, with special office entrance, 10 rooms, almost new, strictly modern, located in best residence section of Minneapolis. Rent, $75.00. References required. Address W. M., care of this office.

AN INTERNESHIP OPEN

An interneship in one of the largest general hospitals in Minneapolis is vacant and will be filled at once. Well-recommended recent graduate of reputable medical school who can remain one year preferred, but young practitioner who desires to take hospital work for shorter period will be considered. Apply at once, giving full particulars and references. Address H. M., care of this office.

PRACTICE FOR SALE

A $4,000 to $5,000 cash practice in a North Dakota town of 1,600 people, 40 miles from Fargo, is for sale, with office furniture and *x*-ray outfit, at a reasonable price if taken at once. Rich Scandinavian and German community. Address O. E., care of this office.

PHYSICIANS WANTED

The Physicians Defense Company of Fort Wayne, Indiana, is looking for some live men to present their proposition to physicians. If any physician with selling ability is interested in this work, it might be well to investigate their proposition.

In TYPHOID FEVER

A Rex Sanitary Closet (Formerly Red Cross)

the first consideration of the attending physician is the minimizing of the possibility of the spread of the infection. Therefore,

One Rex Sanitary Closet

should be his first precaution. Spread of the disease can result from exposed evacuations only, — an impossible condition where a Rex Sanitary Closet and Rex Co.'s Special Disinfectant (Guaranteed coefficient 16) are used, the system insuring prompt, thorough and permanent sterilization of the excreta.

Rex Closets are portable, absolutely odorless during use, do not require water-pressure, sewerage, or plumbing of any kind, and are inexpensive.

Full information gladly mailed upon request.

REX SANITARY CLOSET CO.

511 Plymouth Ave. :: **Minneapolis, Minn.**

PUBLISHER'S DEPARTMENT

HAY-FEVER HINTS

We are now well into the season when the services of the physician are urgently demanded by the victim of vasomotor rhinitis. Effective treatment is then demanded, and promptly, too. Administration of the suprarenal substance in the form of its isolated active principle, Adrenalin, is undoubtedly the wise procedure at this juncture. One feels safe in saying this in view of the long and effective service which has been rendered by this agent in critical emergencies.

There are a number of forms in which Adrenalin is successfully used in the treatment of hay fever. Adrenalin Chloride Solution and Adrenalin Inhalant come naturally to mind in this connection. The substance is also incorporated in the several Anesthone preparations,—in Anesthone Cream, Anesthone Inhalant, and Anesthone Tape, all worthy of confidence, and especially worthy of trial in cases in which for any reason the older Adrenalin products seem not to be indicated. The Adrenalin and Anesthone products, as is well known perhaps to most physicians, are manufactured by Parke, Davis & Co. An exposition of their uses in the malady in question, together with the technic of administration, is now appearing in the commercial pages of the leading medical publications. Practitioners are advised to consult these current announcements.

A HELP IN TYPHOID FEVER

The Rex Sanitary Closet Company, in their new announcement in our advertising pages, call attention to the fact that the spread of typhoid fever is readily checked by the use of their closets, which is, no doubt, the easiest and most effective way to disinfect the excreta of the sick person.

The Rex Closet, with its excellent ventilation and special disinfecting fluid, solves the toilet problem ever present where there is no water supply, and especially the great problem of school house sanitation.

The Rex Sanitary Closet Company, of Minneapolis, invites correspondence from any school board and every physician interested in this problem.

DR. BROUGHTON'S SANITARIUM

Dr. Broughton's Sanitarium at Rockford, Ill., has made a national reputation. It is devoted to the cure of all drug addictions, especially opium and alcohol; and its actual and reliable percentage of cures is very high, but never exaggerated. It is conducted on ethical lines, and makes no extravagant or false claims.

It has a commodious, modern building and beautiful grounds, which make for the comfort of paients; and it is situated in one of the finest of our smaller cities, Rockford, Ill.

STAMMERING

Stammering is a calamity, and the difficulty of curing it after a certain age, when it can be cured at all, should be pointed out to parents by physicians.

The Northwest is fortunate in having an institute for the cure of this class of cases such as few sections of the country possess. The Duke School for Stammerers, located at 1800 Third Ave. So., Minneapolis, is an institution worthy the support of every physician. It has received the most cordial commendation of the Superintendent of Schools and the Board of Education in Minneapolis, where its work is thoroughly known; and the pupil who is sent to it may consider himself fortunate in his opportunity to obtain instruction of the highest order.

If our readers know of cases of stammering, the attention of parents of such children should be called to the Duke School. It is wholly dependable.

EXHIBITS AT THE STATE MEDICAL MEETING

Physicians who have neither the opportunity nor the time to visit the supply houses to look over their assortment of instruments and appliances, find the exhibits at the state meetings very interesting and helpful; and this year at Duluth they will have an excellent opportunity to see at least one large and complete exhibit, as Messrs. Noyes Bros. & Cutler will make a display worthy the occasion. They will show the line of Castle Sterilizers; the Snook-Roentgen *X*-Ray Outfit; the Oxiline Apparatus; and other interesting lines.

ETHYL CHLORIDE ANESTHESIA

A. F. Erdmann, A.B., M.D., of Brooklyn, N. Y., states that the fact that over 30,000 anesthesias have been performed with ethyl chloride should be enough to continue to direct favorable attention to this valuable agent. The writer, after diligent inquiry, has obtained information relating to various operations in which Kelene has been successfully used:

1. Ware, of New York, over 2,000 times, chiefly in Minor Surgery in women and children.
2. Mazzoni, of Rome, Laparotomies and Vaginal Hysterectomies.
3. Malherbe, of Paris, Removal of Breast, Kelotomy.
4. Birmingham Hospital, Operations on the Ocular Recti.
5. Guy's Hospital, London, Iridectomies.
6. *Presse Médicale,* for June 29, 1901, contains reports of ocular enucleations and operations for muscular advancement at Innsbruck. There were no bad results even in patients with heart lesions and respiratory affections, and the pulse remained normal in a case of marked mitral obstruction. There was also a successful operation in the presence of advanced phthisis.
7. The Swiss surgeon, Bossart, reports similar cases.
8. A number of interesting cases in midwifery are described by La Page, Lorier, and Burent, in the *Medical Press* of December 10, 1902.
9. Dr. Erdmann, himself, has had excellent results in forceps cases.

A boy, 10 years old, took it in all 33 times; another boy, of 12 years, took in 12 times; a woman of 56 years took it 10 times. In neither an infant of 3 months nor a patient of 79 years were there any untoward symptoms. A child, 3 years of age, took over 120 c.c. during an operation for impacted urethral calculus which lasted *over one hour.*

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A SHORT VISIT TO SOME OF THE HOSPITALS IN GERMANY, AUSTRIA, SWITZERLAND, AND HOLLAND

By William J. Mayo, M. D.
ROCHESTER, MINNESOTA

NOTE:—Dr. Mayo's present paper is the eighth of a series of exceedingly interesting and valuable annual travelogues given by him to the profession. Three of the series dealt with American surgical centers, one with Canadian surgery, and the other four with European surgery and surgeons. It has been our privilege to publish the European series, and we hope still to have the privilege of publishing many more of Dr. Mayo's useful letters.—The Editor.

Since my former visit to Germany conditions have changed markedly: there is less of the military and more of the commercial. What has been the effect in Germany of the present commercial era upon science? Many Germans deplore it and believe that commercial success has become the German ideal, and that science, literature, and art are not in keeping with the best traditions of the last generation. In my recent visit to Germany I saw no reason for pessimism so far as surgery is concerned. The great German clinics are in the hands of keen, well-trained, and ambitious men, and there is a large output of new and good things. One has but to remember the recent contributions to surgery of the chest, head, abdomen, bones, and joints to recognize the great position of German surgery in this generation.

The German hospitals are large, well-organized, and efficient. Trained women nurses are now in charge of the nursing in all the hospitals of note. The support of these hospitals comes largely from compulsory insurance, which is demanded of both employee and employer, and the municipality and the state furnish their proportion of the funds.

German hospitals are usually built in the one- or two-story pavilion style. The one in Hamburg and the new Virchow Hospital in Berlin, the two largest, are of the one-story, separated-pavilion type, laid out in streets. In the Hamburg Hospital there are nearly 100 buildings with 2,600 beds, and the Virchow, with 2,000 beds and 1,000 employes, has about 60 buildings. The objection to this type of hospital is the expense of operation, the difficulty of keeping the food warm, and the necessity of transporting patients out of doors from the operating buildings to their respective ward buildings.

Considered from the standpoint of economy of operation, I believe the best type of hospital to be the four-story connected-pavilion plan, such as the new hospitals at Vienna and Munich.

To a certain extent the German surgeon is relieved of direct responsibility to the patients, and he concerns himself with the pathologic processes rather than with the patient's likes and dislikes. This has its good features inasmuch as the surgeon's hands are not tied by the prejudices of patients and their friends. It permits greater liberty in dealing with the individual patient, and the German surgeon has a correspondingly high sense of responsibility in not taking advantage of this fact to apply methods of treatment which are still in the experimental stage.

HAMBURG

The surgical clinic at the Ependorf Hospital is divided between Prof. Kümmell and Prof. Sick.

Our visit to Prof. Kümmell was most interesting. He allows his patients to get up the day following an operation and believes this hastens convalescence. Ether, in five per cent salt solution given intravenously, has been used as an anesthetic in this clinic in more than 140 cases without accident. We witnessed one operation under this anesthetic. Prof. Kümmell says that thrombosis will not follow the administration if salt solution be passed through the needle continuously before and after the ether solution. In place of iodoform gauze he uses 20 per cent veoform gauze, which is non-toxic, non-odorous, and quite as efficient.

In one case of traumatic epilepsy, after an osteoplastic flap was turned from the parietal region and the dura was excised, Prof. Kümmell transplanted a piece of the fascia lata with considerable fat attached to cover the cerebrum—fatty side next to the brain tissue. He said he had used this method in a number of cases. An electric saw of his own device was used to open the skull.

A nephrectomy for tuberculosis was made through a lateral transverse incision. The cut end of the ureter was touched with iodin and brought out of a stab-wound through the skin so that if any infection in the ureter followed it would pass outside of the wound. Prof. Kümmell impresses one as being a lover of truth in science, is original in his methods, and is a splendid surgeon.

Unfortunately, I did not see Prof. Sick operate during this visit, but I had the pleasure of attending his clinic for some days ten years ago. He is a master surgeon and has a large amount of surgical material.

BERLIN

Berlin is the imperial city of continental Europe,—forceful, aggressive, and competent. Prof. Bier is here, the leading spirit in surgical progress. He is intensely interested in his work, and his clinic is very popular, especially with the American student.

Bier uses the congestion treatment for tuberculosis of joints, seldom resecting. He sometimes resects the stiffened tuberculous elbow, since it gives motion after a fascial transplantation. I visited three of his wards filled with patients with tuberculous joints undergoing congestion twelve hours at a time each day. Some of these cases certainly showed marvelous improvement. I speak of this because, at the present time, the Bier treatment is quoted but little.

Bier uses local anesthesia if possible with novacocain, one-half per cent. He does not often use spinal anesthesia, being so well satisfied with the local. I witnessed the removal of a kidney under local anesthesia. A fracture and paralysis of the ulnar nerve were operated upon under conductive anesthesia of the cervical plexus and an osteomyelitis of the tibia under local vein anesthesia through the internal saphenous vein below a rubber constrictor of the thigh.

In Schede's resection of the chest-wall, after dissecting the skin-flap, Bier uses a saw to cut through muscles, bone, and pleura, thus preventing hemorrhage. Catgut is used for sutures and for ligatures.

Prof. Bier has the largest surgical clinic in Germany, and he is a worthy successor to Langenbeck, Deffenbach, and von Bergmann, who, each in his time, were the leaders of German surgery.

Körte of Berlin is a painstaking, conservative surgeon, who enjoys the respect and confidence of his confreres. He is one of the best general surgeons in Europe, and his material is good. In operating on the gall-bladder, he makes a curved incision along the chest-wall to avoid injury to the nerves and possible hernias later, and, as a rule, he prefers cholecystectomy to cholecystostomy. He makes the posterior one-stage operation for rectal cancer. In intestinal anastomosis he uses end-to-end union in the small and end-to-side union between the small and the large intestine. Catgut is used for ligatures. Körte frequently employs resection for tuberculosis of the joints and, so far as I could learn, prefers this to prolonged mechanical treatment in most cases.

At the Charity Hospital, Franz is chief of the obstetric and the gynecologic clinic, and he has a large amount of work. I witnessed several of his operations and have never seen more skillful pelvic surgery. A complete abdominal hysterectomy for cancer of the cervix was a masterpiece. Franz makes the transverse abdominal incision of Phannenstiel, and uses spinal analgesia; this was the only clinic in which I saw it used.

The American Medical Association of Berlin has good quarters, library, etc. American physicians visiting Berlin may obtain here valuable time-saving information regarding Berlin clinics.

Prague, in Bohemia, Austria, is a city of about 600,000. There are two universities here, one German and one Bohemian, each having a complete medical department. Schloffer is chief surgeon in the German University Hospital, coming to Prague from Innsbruck. He was formerly an assistant of Wölfler, who was chief of the Prague clinic for many years. Schloffer is a man in early middle life, a splendid surgeon of the sound conscientious German school.

The Bohemian University Hospital is an equally fine institution and has had associated with it many distinguished men. Maydl, made famous by his operation of transplantation of the ureter into the rectum and for a simple method of colostomy, was formerly chief surgeon. Kukula is the present chief surgeon. He has traveled extensively and has had a distinguished surgical career. The second position in surgery in this university is held by Prof. Jedlicka, a fine surgeon and a charming gentleman, to whom I am indebted for a most pleasant and profitable visit to Prague.

The gynecologic clinic in the Bohemian Hospital is under the direction of Prof. Pawlick. I was so fortunate as to see his associate, Prof. Pichad, do some very fine pelvic surgery.

The eye clinic in the German University and the orthopedic clinic in the Bohemian University have a reputation over all Europe, and they have a wealth of material.

VIENNA

The general hospital in Vienna has been described so frequently in detail that I can add little of interest. This great hospital of 2,600 beds is old but still useful. A new and modern group of buildings in close proximity is now under construction, and several departments are completed. Vienna may be said to rank easily first as the world's medical center, on account of the vast amount of material for study conveniently located at this hospital. The conditions here are ideal for students as contrasted with many hospitals in Berlin and other cities where much time is lost in traveling about from one hospital to another.

Von Eiselsberg, whose reputation, so justly earned, needs no words from me, is the chief surgeon of the first division of the surgical department of the University of Vienna. Precision, thoroughness, and splendid asepsis are characteristic of v. Eiselsberg's work. He is kind and conscientious in his treatment of patients, and he is a great teacher of surgery. I was so fortunate as to witness a number of his operations covering a wide range of work. All were done with equal facility and skill. I also had the pleasure of going through the wards and seeing patients doing well following operations.

Dr. Clairmont is Prof. v. Eiselsberg's first assistant and is a surgeon of great ability. He has visited America and is well known here. It was exceedingly interesting to see the two operating-tables in simultaneous use in one operating-room, one by Prof. Eiselsberg and the other by Dr. Clairmont. The technic and methods were identical, and each was demonstrating to an interested group of spectators. This clinic should be visited by every American surgeon traveling in Europe.

The second surgical clinic is under Prof. Hochenegg. I was greatly interested in his operation for cancer of the rectum, which has deservedly given him a great reputation. He has done about 240 operations by his method, and his assistants have done as many more, making about 500 cases,—a unique experience in one clinic. The Hochenegg operation for cancer of the rectum is of the Kraske type, i. e., removing the 4th and 5th sacral vertebræ and the coccyx, and, in two-thirds of the cases, making a sacral anus. In about one-third of the cases the bowel is drawn down through the anal muscles or sutured in continuity. In the 500 cases operated upon, the average mortality was between 18 and 19 per cent, with 20 per cent of five-year cures. In his private work Hochenegg's mortality is a little under 10 per cent.

At the Rothschild Hospital I saw Prof. Zuckerkandl operate upon three kidneys, making a transverse incision in the lateral position. Prof. Zuckerkandl is famous for his contributions to renal surgery. I found his work most interesting and instructive. Those interested in surgery of the kidney should attend his clinic and study his specimens. Dr. Bachrach is Prof. Zuckerkandl's first assistant, and Dr. Jeruselum his junior assistant. Both have visited America.

Prof. Wertheim has charge of the second gynecologic clinic in the Vienna Hospital. I was present while he performed the operation which bears his name for radical cure of cancer of the cervix by the abdominal method. The pelvic glands are not removed unless enlarged, and the ureter is not separated from its bed more than is necessary, because of the possibility of fistulæ in the ureter following such disturbance. He devotes great attention to the tissues immediately about the cervix and upper vagina. In my experience, this is correct in principle. Wertheim is a persistent, thorough operator and gives one the impression that he knows exactly what he is about. He has operated upon more than 500 cases with an average mortality of 14+ per cent, and has had 24 per cent of five-year cures. I visited his wards and was shown some cases of ureteral fistulæ, also a rectal and a bladder fistula following operation. He said they were patients on the frontier between the operable and the inoperable, but he felt it his duty to operate upon them since they might be cured. I have no hesitation in saying that the Wertheim operation as performed by himself is the best operation for cancer of the cervix that I have seen.

Prof. Schauta has charge of the first gynecologic and obstetric clinic. Six hundred patients with cancer of the cervix have been operated upon in this clinic with a mortality of 6 per cent and about 20 per cent of five-year cures. Schauta makes a very extensive vaginal hysterectomy; the ureters are exposed and separated by using the Suchart vaginal and perineal incision. Through the kindness of Dr. Christofoletti, Schauta's first assistant, I was enabled to see an excellent demonstration of the method in a difficult case. There are few complications following this operation, and I believe it to be a thoroughly good one. In my opinion the Wertheim method enables wider and more thorough extirpation, but it has a higher mortality and incurs greater danger of secondary complications. Whether the advantage to the patient in the Wertheim method is sufficient to overcome the difference in difficulty, danger, and complications, is an open question.

Vienna may be said to be the favorite city of American medical students. It has an American Medical Society similar to the one in Berlin, with an average of 120 members enrolled. I was present during an interesting meeting of the Society. An American physician visiting Vienna will do well to visit the American headquarters, where he will be quickly put in touch with medical Vienna.

BERN

For thirty years the Kocher clinic at Bern has been one of the leading surgical clinics of the world and is still one of the leading clinics. More new and good ideas have come from this one clinic than from any other clinic of my acquaintance, all due to the genius of one man, Theodor Kocher, who is still vigorous with a seemingly perpetual youth. Kocher is constantly at work trying out new things and improving the old. He is an inspiration to surgeons the world over. The work in this clinic is marked by the extensive use of local anesthesia by painstaking care in handling the tissues and the exclusive use of silk for sutures and ligatures. Kocher is a great believer in the early operation for exophthalmic goiter and says that delay is unwise and leads to organic degenerations from which the patient may never recover. I was greatly interested in his method of procedure for prolapse of the uterus, which he has practiced for many years. The abdomen is opened and the uterus drawn up into the abdominal incision, the entire uterus above the cervix being made subcutaneous; the muscles are sutured to the uterus just below the fundus. If the operation be performed during the child-bearing period, the Fallopian tubes are dissected out. I had an opportunity to examine several cases following operation.

TÜBINGEN

The surgical clinic at Tübingen is under the direction of Prof. Perthes, a former assistant of Prof. Trendelenburg. The hospital is very well appointed, the operating-rooms are well equipped, and the organization for the surgical work is of the best. Tübingen is a small city, of less than 20,000, and is typically a German university town. There are 2,000 students in the various departments of the University, which is the only one in the entire province of Württemberg.

In operations on the gall-bladder, Perthes makes an incision beginning at the ensiform cartilage in the midline to a point one inch above the umbilicus, then cuts the right rectus across, and extends to the right as far as necessary. The exposure is fine, and no hernia follows. Perthes usually does cholecystectomies because the patients come late. He does considerable work in surgery of the lungs and demonstrated many interesting cases. I would advise all American surgeons visiting Germany to attend the clinics at this university. We saw in Tübingen much that was new and interesting, and I enjoyed my stay there very much.

BONN

Bonn is an old university town of great renown and has over 4,000 students, 600 of whom are medical. The surgical clinic has always been under the directorship of a great surgeon. Trendelenburg was here before he went to Leipzig; Max Schede came from Hamburg at the height of his justly earned reputation and died here.

Bier was here before he went to Berlin. Garre is now in Bonn and is in every sense a sound and forceful surgeon. The organization and the discipline of his clinic is nowhere excelled. There is literally "a place for everything and everything in its place." Garre is one of the best teachers of surgery to be found in Germany, and he operates, not only on patients at the clinic for his students, but also on the cadaver. Like so many continental surgeons, he uses silk exclusively for ligatures and sutures, always fine and out of a bichlorid solution. He says the advantage of using silk is in its fineness, its sterility and its complete impregnation with an antiseptic.

HOLLAND

There are four universities in Holland, the oldest at Leyden. The two principal medical schools are located at Amsterdam and Utrecht. The Municipal Hospital at Amsterdam has about 600 beds, 200 of which are surgical. It has two divisions under the supervision of Prof. Rotgans and Prof. Lanz, both of whom I had the pleasure of meeting. Prof. Rotgans is a very active surgeon and a good pathologist and diagnostician. I witnessed a number of operations in his clinic, one, a multiple pancreatic cyst of large size in a male patient, was most interesting, since a correct diagnosis had been made before the operation. Prof. Rotgans has used the anterior method of gastrojejunostomy with good success for many years, and he prefers the method in all cases.

Prof. Lanz is not only a most capable surgeon but one of the foremost art critics in Holland. He is one of the controlling spirits of the National Gallery of Art in Amsterdam. He has a large private hospital in which he makes provision for the care of the poor, as well as the rich, and especially for the people in moderate circumstances. The middle classes on the Continent are usually forced to the public clinic, or they are financially embarrassed in the private ones.

UTRECHT

The States Hospital in Utrecht is new and modern in every respect and is an excellent hospital to visit. There are 120 surgical beds, and about 1,600 operations are performed a year. Prof. Lamieris is the directing surgeon of the clinic and the professor of surgery in the University. He is progressive in his work, full of enthusiasm, and an excellent operator. He performs the operation for indirect inguinal hernia by a simple and effective method of his own. He incises the canal, removes the sac, ties high, and drops back, merely placing three or four sutures in the cut aponeurosis. For direct hernia he uses the Bassini operation.

The Dutch trained nurses are strong, intelligent, and capable, and neat and clean in appearance. I have seen no better.

There is a distinct school of German surgery, and so far as I know it is the only distinct national school, although we have a standardization of technic in America and a trend of surgical opinion which may be said to be American. The American school has been greatly influenced by German ideas and German methods. The American travels and learns, and America is the surgical clearing-house for international surgery. German surgery is forceful, thorough, and exact, but has not been influenced by foreign ideas to any extent. German surgery dominates the neighboring countries, and all the clinics I visited this year were distinctly German, whether in Germany, Austria, Switzerland, or Holland. The central idea in German surgery is based on the sense of sight. "To do your work well," says the German, "you must see what you do"; hence large incisions. To the American these incisions may seem excessive, yet we all know the size of the incision does not often affect the end-results. Another important point in German surgery is to eradicate the disease, if possible. Operations are not, therefore, undertaken lightly; the punishment must fit the crime, and, with the exception of cancer, patients are operated upon in a more advanced stage than with us. All the gall-bladders which I saw removed should have been removed; they were functionless because of their advanced pathologic condition. German surgery deals with pure science; sentiment has no place in it. The directing surgeons of the clinics are responsible men, well-trained and effective. They have three missions to perform: (1) to advance surgical science, (2) to teach the next generation of surgeons, and (3) to conscientiously devote themselves to help their patients.

The German of today is the most potent factor in continental Europe. Every child in America should be taught the German language.

REPORT OF A CASE OF OBSCURE BONE DISEASE AND CONCLUSIONS*

By H. J. G. Koobs, M. D.

SCOTLAND, S. D.

Patient, male; Scandinavian; aged about 40; married and has living children; occupation, farmer.

Family and previous history, negative.

He came to see me first in October, 1910, seeking relief for what he called rheumatism in the left shoulder and upper arm. The only symptom present at this time was that of pain, which was more or less persistent, gnawing in character, and aggravated on exertion. Believing the case to be one of a localized myalgia, some liniment was prescribed and rest enjoined.

The patient returned in about three weeks, stating that he had relief for a while, but that the same trouble was getting worse now.

There was an absence of all symptoms, except pain, the same as before. I prescribed a tonic and alterative for internal medication and a local counter-irritant.

He reported again on December 1st, with no improvement. The patient believes medication made it worse instead of better. He was, however, unable to rest the arm as advised on account of pressing work, as he was doing all of his farm-work. He had been pitching hay the last few days and needed to finish corn-picking before he could give the arm rest as prescribed.

He reported again December 11th (had been picking corn until the day before). Pain was more severe and constant, disturbing sleep, and he had great difficulty in using the arm the last few days.

Examination of the region affected revealed a fracture at the upper one-third of the humerus and crackling of bone. An *x*-ray picture showed fracture and necrosis of bone.

This threw new light on the subject, but did not by any means make a clear diagnosis. The proper treatment, however, seemed clear, viz., operative interference.

By reason of the negative history and the absence of constitutional symptoms, also absence of apparent involvement of other parts of the body, we felt we could exclude everything except tuberculosis, carcinoma or sarcoma, or an idiopathic atrophy known as osteoporosis or fragilitas ossium. The latter seemed to me to be the most probable condition present, but I could not exclude the former positively.

Dr. V. B. Knott was consulted, and he also could not make a definite diagnosis, but advised operation. The patient had asked me to save his arm if possible, in which we concurred, providing operation did not reveal a condition that was dangerous to life if the arm was left on.

Operation: Exposure of the shaft of the bone revealed the upper two-thirds of the bone honeycombed and brittle, but there appeared to be no involvement of the neighboring structures. There was no pus or granulating tissue, but definite diagnosis could not be made even now macroscopically. Two surgeons insisted that it would be best to amputate the entire arm, thinking that a flail-like arm would be of no use anyway, especially to a laboring man. I could, however, not give my consent under existing conditions.

All of the diseased bone was removed, which consisted of the upper two-thirds of the shaft and the head, which was disarticulated.

The excised bone was given to the pathologist for diagnosis, whose report follows:

REPORT OF PATHOLOGIST

The microscopical findings in the bone specimen submitted to us for examination, are as follows:

CONDITION OF BLOOD VESSELS

Vascularity in some places was marked; in others, almost absent. The muscularis and adventitia of all vessels seen were about normal. The intima of all vessels was in extensive proliferation. Where the marrow tissue was most in evidence, marked hemorrhages had taken place here and there.

HAVERSIAN CANALS

All canals were more or less enlarged. Some of them were so much enlarged as to be partly canal and partly an irregular space. Most canals communicated with the marrow cavity. The marrow tissue was absent from nearly all the Haversian canals.

THE MARROW CAVITY

The marrow cavity was very irregular in contour. It had no well-defined border, but consisted of irregular spaces that opened into the canals, and in some places closely approached the periphery of the bone. In many places there were trabeculæ of osteoid tissue zigzagging across the marrow cavity. From the size and shape of these spaces, the enlargement of the canals, and the marked loss of normal marrow tissue, we infer that the marrow was largely liquefied.

MARROW TISSUE

The marrow tissue contained many large flat cells, clusters of lymphocytes, a little recticular connective tissue, patches of free red-blood cells, and stains of hematoidin.

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*Read at the 31st annual meeting of the South Dakota State Medical Association at Mitchell, May 22 and 23, 1912.

CONDITION OF BONE TISSUE

In several places there were fields containing, in a jumbled arrangement, normal bone, cartilage cells, bone matrix without bone cells, and rows of osteoblasts.

All the lacunæ were pinched and the canaliculi were lost or very small. The bone-cells seemed too far apart. On the under side of the best strips of bone were to be seen numerous osteoclasts lying in the lacunæ.

The edges of such bone were thus corrugated and roughened. On the edges of the bone trabecula the bone cells and their lacunæ had disappeared. We would consider it evident that much of the bone lamellæ had been decalcified. The feathery and porous condition of all bone seen constitutes that condition called osteoporosis.

ANALYSIS

As there was no infiltration or metastasis, no disproportion in the connective-tissue elements, nor abnormality in the size of the cells, carcinoma and sarcoma can be excluded. Syphilis can be excluded because there were no signs of ossifying periostitis, caseation, or proliferation of connective tissue. As there were no tubercles or proliferating tissue, tuberculosis can also be excluded. There was not sufficient vascularity and regenerative effort present to make us think of rachitis. As there were no pus cells present, no proliferation of connective tissue, and no round-cell infiltration, the condition was certainly not directly inflammatory; most certainly not an osteomyelitis in origin.

OPINION FROM THE MICROSCOPIAL FINDINGS

From the condition of the arteries and the amount of decalcification present, we would infer that the nutrition of the bone had been first affected by an endarteritis. The process of halisteresis was surely present in many places. Next came tearing down of bone lamellæ, reversion to cartilage matrix, attempts at bone regeneration, fatty degeneration of the marrow, finally liquefaction of the marrow, and sufficient bone absorption to cause bone atrophy.

Johnson & Rowley, Pathologists

Convalescence was uneventful except for rather profuse bloody oozing immediately after operation. The patient has remained in good health since, now about one and one-half years after operation, doing the usual farm-work. While unable to lift the arm sideways or to the head, he can swing it backward and forward, has perfect control and use of the hand and forearm, can bring the hand halfway up the chest in front, is free from pain except after excessive use of the arm, and when last seen was plowing and said he would not take $10,000 for his arm yet. [The patient was exhibited.]

CONCLUSIONS

It is manifest that the pathological condition we had to deal with here was an atrophy and a pathological fracture of the bone, doubtless caused by nutritional disturbances, the underlying factor most likely being trauma or injury due to excessive use. In all probability there was some injury to the nerve that controls nutrition to that part of the bone. There is no other good explanation for the localized endarteritis.

The literature that has been at my command is rather scant and indefinite on this subject.

The diagnosis that would have to be made in this case brings it under the heading of idiopathic friability of bone, osteoporosis, or fragilitas ossium, terms that are practically synonymous.

Whether the treatment pursued in this case was the best possible, is perhaps an open question. It was satisfactory to the patient in that he kept his arm and was relieved of the pain. It is evident that amputation should not be done too hastily in diseased bones of the extremities, especially the upper, and I believe this holds true even in malignant bone diseases.

While I know of no precedent in literature to guide me, in the light of my experience with this case and the known researches of bone-regeneration under various conditions, I should, in another like case, try immobilization and rest, in the hope of getting restoration of bone-tissue ultimately. I should persist in this unless the clinical course in time demonstrated a malignant or tubercular process at work, or if the pain could not be relieved by this fixation treatment.

In case excision became necessary, bone-transplantation, according to Dr. J. B. Murphy, should also be tried.

DISCUSSION

Dr. Edward S. Judd (Rochester, Minn.): I am sorry I did not hear all of Dr. Koobs' paper. I have had two or three similar cases. One, which one very much like the one he described, was in a little girl who had a considerable amount of tumor-formation. Amputation had been advised several times before we saw her.

The method we have found most valuable in differentiating bone-lesions is to diagnose with the *x*-ray. In this particular case we felt sure the lesion was not a sarcoma, as there was no proliferation of the periosteum. Carcinoma is common secondarily. Sarcoma is the malignant disease most frequently seen in the bone and is differentiated from osteomalacia almost entirely by the *x*-ray.

The case I had turned out to be a bone-cyst. We resected four inches of the humerus, and filled in with a V-shaped piece of bone taken from the edge of the tibia. The space in the tibia filled perfectly, and in three months' time it was almost as good as before.

The point Dr. Koobs brought out in his paper is a good one. The only time we do radical operations for sacroma of the bone is when, in order to remove the growth, we are obliged to interefere with the bone, so that it is impossible to maintain function of the limb. A conservative operation offers the patient as much as a radical one.

PUERPERAL INFECTION*

By C. E. Spicer, M. D.

LITCHVILLE, N. D.

About a year ago there met at Strasburg a German gynecologic congress devoted to the discussion of puerperal infection, and the program of this very important meeting comprised over thirty-five papers and addresses on the different phases of this unfathomable and seemingly inexhaustible department of the obstetrical art. Consequently, for me to attempt even to touch upon more than a few of the more salient points of the subject, within the time allotted me for the preparation of such a paper and for the time which may be given to it in a meeting of this character, seems an insurmountable task and one beyond my ability. My address, therefore, will be devoted to such parts of the subject as appear to me to be most applicable and practical to the average rural practitioner, such as we all are at this meeting.

With the possible exception of an infection termed sapremia, or septic intoxication, I understand that puerperal infection is a wound-infection resulting in a localized and circumscribed morbid process or in a septicemia more or less profound. To the latter may be conveniently applied the term *puerperal sepsis.* It is an identical or parellel example to an infection of a wound in any other part of the body which remains thus localized, or is complicated by a septicemic process. A single possible exception may be found in puerperal infection due to the rich vascular supply and lymphatic arrangement of the female uterine tract and adnexa, especially marked during pregnancy, which makes wound-infection in this anatomic region more appalling, harder to combat, and more rapid in its progress than elsewhere in the human organism.

Post-mortem findings in subjects dead from puerperal infection agree precisely with the necropsy records of patients dying from septicemia following infected wounds in any other part of the body with the possible exception that in the former there is an accentuation of the lesions around the genital tract.

The terms *child-bed* fever, milk fever, or puerperal fever, may still suffice for members of the laity; but to the medical man it should mean the implantation or inoculation of septic bacteria into an abraded or denuded surface, the placental site, into open wounds from lacerations during labor, or into possible abrasions and fissures of the mother's nipples, remaining there in each instance as a local condition or becoming systemic.

There are many gradations and differences in the course of puerperal infection, depending upon and governed largely by the infecting organism, its virulency, the resisting powers of the host, our patient, and the course of the treatment instituted. These and other factors make, necessarily, the differentiation or boundary line between a purely physiological and a pathological puerperium hard to define. One deplorable fact, which we all abhor and seemingly remediless, is, that few women approach labor in a normal condition.

On the supposition that puerperal infection is a wound-infection, the cause is exogenous and not endogenous. I am not a believer in the auto-infection theory of this disease unless we infer that the term means an infection from bacteria which have their natural habitat in or on the surface of the body. The demoniacal cause of disease has long since been disproven, and the old ideas of spontaneous generation have been consigned to the medical junk-shops of the dark ages. How, then, is it possible for bacteria to be so generated within the body?

Many good and reliable authorities accord that the uterus, tubes and ovaries, and vagina are surgically aseptic in a normal condition, and that the vulvar and adjacent regions are teeming with bacteria ready to invade the host when the slightest occasion presents, whether by the way of instrumentation, by faulty digital examinations, or through a weakened link in the chain of the aseptic preparations for labor.

Various microörganisms are held responsible for this type of infection, some forty or more distinct varieties having been accused as being the direct etiological factor in the local morbid lesion, or in the resulting septicemic process. There are, however, three or possibly four found in the average cases, either singly or combined in mixed infection. They are the streptococcus, the staphylococcus, the colon bacillus, and the gonococcus. More rarely the bacillus typhosis, the bacillus of pneumonia and of diphtheria, the bacillus aërogenes capsulatus, the bacillus of influenza, and other cocci are the direct etiological factors or infecting agents. Any one or all of the above bacteria may be associated with putrefactive processes, but when the latter are found independent of the former the morbid condition is one of sapremia. In this latter condition the symptom-complex is due to a systemic absorption or a septic intoxication of the products of decomposition, the organisms themselves not entering the blood-stream, a sharp distinction being hereby drawn between true sapremia, puerperal infection localized, and puerperal infection generalized.

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*Read before the Southwestern Medical Society of North Dakota, April 22, 1912.

I shall not attempt a discussion of the pathology of my subject, as this alone is deserving of more time for its proper elucidation than is allotted to the general subject under discussion in this evening's program. I shall, then, pass the pathology by with a casual reference to the anatomical, as well as a clinical classification, and treat the symptomatology from the standpoint of its entirety looked at from the source of a general or systemic infection, rather than attempt to discuss the symptoms of each of the subdivisions or resulting complications.

Puerperal infection may occur ante-partum or post-partum, the former uncommon, yet usually rapidly fatal. In such cases the necropsy findings are less systemic, the veins and lymphatics, aside from the uterus and adnexa, showing the gross changes.

We may handle the subject conveniently from both the clinical and the pathological side under the following subdivisions, which suffice this paper by a mere mention in outline, viz.: Vulvitis, vaginitis, cervicitis, salpingitis, oöphoritis, pelvic cellulitis, pelvic peritonitis, phlebitis, mastitis, proctitis, cystitis, nephritis, local or general peritonitis, puerperal pneumonia or pleurisy, pyemia, puerperal mania or insanity.

To attempt to discuss each of these subdivisions is a task too great to be covered by one paper alone, and in my reference to this classification I shall endeavor to cover the general systemic effects on the body as a whole, touching the subdivisions but here and there as occasion requires.

The symptomatology is necessarily variable depending on the anatomical region involved, the nature and virulence of the infecting organism, the resistance and personal equation of the patient, the time of the occurrence of the infection, and the nature of the treatment early instituted. As a general rule, the earlier the onset before or after parturition the more profound the impression upon the patient, yet the so-called late infections, which occur from the sixth day on to the third or fourth week, may assume a fulminating type.

We are all familiar with the appearance of our patient and the consequent mental attitude of ourselves when we realize that something has gone wrong. We ought to be always expecting something atypical to develop in the course of every confinement and never feel assured that all will culminate ideally, yet we may have striven earnestly to be strictly aseptic in all our technic. By the assumption of such an attitude as this we shall be the most extremely vigilant in our professional watch for the safety of our patients.

Everything goes on smoothly for the first 24 or 36 hours, when, as a thunderbolt from a clear sky, our patient develops a decided chill, or at least suffers chilly sensations. A chill in itself is not pathognomonic of a puerperal infection, yet when it does occur our suspicions should be aroused. When the chill is followed by fever of the non-intermittent type, our first thought should be of infection. The pulse becomes angry with a rapid rate. A slow compressible pulse is incompatible with these infections in their earlier stages. A rapid pulse is a danger-signal, meaning a threatened post-partum hemorrhage shortly after the conclusion of the third stage of labor and an infection later on. The lochia is usually scanty and often malodorous, apparently arrested by a stenosis of the internal os with consequent retention and stagnation. We are usually happy when we find these symptoms are the only ones present. In the earlier stages spontaneous pain is absent but it may be elicited frequently by guarded palpation over the pubes. In the latter stages pain may be sharp and cutting, or dull and aching, depending on the anatomic region involved. The temperature is variable, being extremely high, a moderate range, or a rise of a few degrees. The intestinal tract suffers in sympathy to the limits of tympanites or marked constipation even to the extremes of intestinal paresis. The tongue is coated and often dry and septic. The breath is foul and frequently emits a sweetish odor. The skin is sallow and the face anxious. The urine is scanty, highly colored, and febrile. As systemic infection deepens there may be delirium, either active or of the low typhoid type. Puerperal mania or insanity often develops, but is usually late. Repeated chills with accentuation of other symptoms mean fresh constitutional disturbances due to infective emboli setting up new pyemic processes in other parts of the organism. Paraplegia and hemiplegia, or even cerebral coma, may develop. And so on until our patient passes beyond our earthly control and pays the penalty of the pangs of motherhood, but we shall hope never through a breach in the technic of our aseptic methods as measured by the light of our present knowledge of the bacterial cause of puerperal infection.

The diagnosis of the condition is usually easy from the standpoint of a general infection, but the location of the exact anatomic lesion is frequently difficult. A rapid angry pulse is a danger-signal, whether accompanied by a high or a low range of fever. A persistent fever of 100° for a longer period than 24 hours, after a proper elimination of the bowels has been accomplished, usually signifies infection of the lying-in woman. This is strengthened when there are malaise, headache, loss of appetite, and disturbance of the status of the normal lochia; and this syndrome following a chill certainly means infection. I believe the so-called absorption fever or "one-day fever" is a misnomer, and that a true infection is the only assignable cause of the condition.

We next direct our attention to the exact anatomic lesion with which we have to deal. This is arrived at, as in all logical methods of diagnosis, by a process of exclusion. We should carefully inspect the breasts; look over the lungs for a possible lesion; examine the urine for albumin and presence of a high percentage of indican; ascertain the type of the fever present; and, lastly, draw attention to the genital tract. The perineum, the lower vaginal outlet, and the entire vagina are investigated for ulcers in the site of lacerations produced in parturition. Ascertain the size, position, consistency, and tenderness of the uterus, and, incidentally, the status of the tubes and ovaries. In a large majority of cases we shall find our trouble in the uterus.

Having now determined the true anatomic lesion with which we have to contend, and for the sake of brevity we shall assume it to be located in the uterus, we should next direct our attention to the etiological factor present. The lochia should first be investigated, and cultural tests are indispensible if we wish to ascertain the exact bacterial cause of the infection. Being unable to meet these requirements, so essential in the rational treatment which should follow, we may at least make smears for the detection of the microörganism. Being unable to utilize either cultures or smears, we may ascertain much valuable data from the physical examination of the lochia. A frothy, malodorous, and usually profuse lochia is likely to mean a sapremic infection. Should this be accompanied with other grave subjective and objective symptoms it is more likely to mean pyogenic infection. The essential cause of the infection may be hinted at from a careful palpation of the interior of the uterus. A perfectly smooth lining is consistent with the most virulent infection, while a surface ragged and necrotic is usually present in pyemic or mixed infections.

By numerous instances, read in the literature and in my own practice, I am convinced that psychical impressions, like fright, worry, or grief, may cause a sudden rise of temperature along with other suggestive symptoms; and it is only by a rapid subsidence of these abnormalities that our diagnosis and our returned and equipoised mental equilibrium are assured.

The resisting powers of our patient, the anatomic location of the lesion, the range of symptoms, and the virulency of the infecting organism are the chief elements concerned in the prognosis. A high pulse-rate combined with a low temperature is dubious. The pulse-temperature ratio is a better guide to the outcome of the case than the height and duration of the fever. Repeated chills and a persistent pulse of over 140 are both grave symptoms, and should these be accompanied by dyspnea, delirium, altered features, and a septic tongue the indication is towards a fatal termination in a short time. A streptococcic infection resulting in a general septicemia certainly results more often in death than recovery. Intercurrent disease, post-partum hemorrhage, prolonged chloroform anesthesia, difficult or inexpert instrumentation, and dystocia add gravity to the picture.

In the consideration of a rational treatment of puerperal infection a careful analysis of the pathological findings in each particular anatomic lesion concerned and the ascertaining of the exact etiological factors acting both directly and indirectly as causative agents, are of paramount importance. It is convenient to divide the treatment into prophylactic and curative, subdividing the latter into medical, surgical, and serum-therapy.

Naturally, the rational plan of attacking such a formidable disease is by means of prophylaxis. In this asepsis demands first rank and first thought. We should handle our lying-in women as aseptically as we would handle them during a laparotomy. Those of us who have endeavored to keep abreast of the times in obstetrical literature should be impressed with these facts in the conduct of all our obstetrical cases. As the uterus and vagina are normally sterile the ante-partum and the post-partum douche have no place, but as the vulvar and adjacent regions are natural habitats of all kinds of bacteria a careful disinfection of these parts should be the rule. As water (and bath water is septic) will enter the vagina the tub bath should be interdicted. Careful catharsis and cleansing enemata are necessary measures worth adopting to guard against colon bacillus infection. We should cultivate determining the position and presentation of the fetus by external palpation. The vaginal route should be reserved for obscure cases in which the abdominal method gives unsatisfactory results. A vaginal examination should never be undertaken until a proper hand disinfection has been carried out, and it had better be done with sterilized gloves.

The attitude of the accoucheur should be that of watchful expectancy, intervention to be undertaken only in the presence of a well-marked indication, and then in an aseptic manner. Carefully attempt to prevent all perineal lacerations, and, when they unavoidably occur, attend to an immediate aseptic repair, usually before the delivery of the placenta. Do not attempt Crede too early; a spontaneous third stage is ideal. We should earnestly endeavor to secure complete evacuation of the uterus and to maintain permanent uterine contractions. Examine the placenta thoroughly under water to ascertain its entirety, yet I am not agreeable to the opinion that a manual exploration of the uterine cavity is indicated for the removal of a strip of retained membrane. I am in favor of a judicious use of ergot in most cases and in all in which inertia uteri has been a factor. Insist on a carefully sterilized perineal pad and at least freshly laundered bed linen and gown for the mother. Careful elimination of the bowels by the end of the second day, aseptic ante- and post-partum care of the mother's nipples and the prevention of indiscriminate tinkering by the neighbor women will prevent many anxious moments on the part of the attending physician.

Having relieved our minds that our prophylaxis has been carried out in the light of the present age of obstetrical progress, yet infection having developed, the anatomic region of the lesion located, and the diagnosis of the etiological factors made, what shall be our curative treatment? In this part of the subject I shall not attempt a discussion of every conceivable lesion possible in the various subdivisions mentioned heretofore, but rather outline the treatment as I see it for the general symptom-complex, and apply details to those lesions localized and centralized in the uterus and adnexa.

An uncomplicated sapremic infection demands copious intra uterine douches of normal salt solution, a maintenance of the Fowler position to promote drainage, the judicious use of ergot and hydrastis, and the removal of the debris from the uterus manually or by the curette. In consideration of the last item mentioned it is to be conceded that such debris and even placental tissue is unfavorable for the growth of the streptococcus, yet favorable for the development of other bacteria; and although we render the uterine cavity free of sapremic bacteria, we may by faulty technique introduce a more profound infection by implanting the most virulent of all uterine infecting agents, the streptococcus, whose natural habitat is living tissue.

In face of the more severe types of infection I believe intra-uterine manipulations are contra-indicated, except perhaps douches of normal saline. I believe these are unnecessary when ample drainage is provided for. The patient is profoundly impressed constitutionally and needs supportive and eliminative treatment. Use ice packs for fever or delirium; give strychnine, digitalis and whiskey to maintain the heart; foster elimination by regulated bathing and copious administration of fluids; use normal salines per rectum, preferably by the drop method, for shock and collapse; and ergot combined with hydrastis to maintain uterine contractions and tonicity. In these infections as in the sapremic type the assumption of the Fowler position will favor drainage and will not compromise the patient in any way.

Should the presence of the streptococcus be diagnosed, or it assumed to be present, the administration of polyvalent antistreptococcic serum in large doses should be early resorted to. It has little effect in the late cases. The dose should be 30cc, or as high as 300cc in desperate cases. Opsonotherapy has of late been meeting with great favor, and it is but a question of time only when the autogenous vaccine will supplant the use of both the polyvalent and the mixed serums.

When the infection has passed the region of the primary lesion and fails to respond to the use of the serum, intravenous injections of 1 or 2 c. c. of a 10 per cent solution of collargol is reported to exert a profound impression on the course of the disease. Personally, I have had no experience with the drug.

As infections of this character soon pass the bounds of the uterus, even in the short space of two hours, curettage or hysterectomy seems to me to be a useless and a harmful procedure. I consider surgery indicated only in peritonitis diagnosed early and then for drainage only, localized abscess formation, septic thrombophlebitis, suppurative mastitis and like circumscribed processes.

With our increasing knowledge of the etiology, pathology and pathogenesis of puerperal infection it seems like reversing the very laws of nature to allow its ravages to approach its victims without raising the hand of warning to allow preventive medicine to step in and waft that frail and fragile human bark safely across a peaceful sea to a harbor of prophylactic safety. To Semmelweiss belongs the honor of having conquered the grounded superstitions of his times, standing firmly and steadfastly in what he believed to be the truth and giving to suffering motherhood a ray of hope and gladness amid the gloom and despair enshrouding the confinement bed. Our own Holmes, twice honored for his immortal verse and the practical living of an earnest desire to break the shackles of benighted motherhood and to free from bondage a suffering sex, deserves the honor of the father of modern midwifery. Lister, who has just closed a life earnestly devoted to the cause of aseptic surgery and consequent aseptic midwifery, deserves well the just credit of the demonstration recently celebrated to his memory. To us whose humble station dictates a sojourn in a remote and uncouth spot on the plains of North Dakota, facing the elements at times when the peaceful sleep of nature should crown our efforts of daily toil, belong the meager pittance and often begrudged and frequently never-given credit of living equally up to the light of modern midwifery and striking boldly forward with a high sense of truth and consciousness to carry out this plan to the representatives of motherhood.

TUBERCULOSIS AMONG THE AMERICAN INDIANS*

By Frank H. Creamer, M. D.

DUPREE, S. D.

My subject, tuberculous diseases among the South Dakota Indians, is a subject which makes me feel like offering an apology to the Association before I begin. You no doubt have heard and read so much on this subject that it no longer has interest to you. However, I shall try to make this paper as interesting as possible upon such a subject; and I believe when the subject is gone into it will be of interest to you, one and all.

In opening, I wish to state that tuberculosis is the most prevalent disease with which the red man is afflicted, and if we look over our vital statistical reports we are at once amazed at the terrific mortality this disease has among the American Indians. I have tried to get as full data as possible among the native Indians bearing upon this disease as it existed in early history, as well as that relating to later years, and I find that tuberculosis was practically an unknown disease among them until the trader or white man came to them in an early day. And, then, as the trading became common, many of the traders (some of them the scum of creation) married Indian women and disseminated tuberculosis and other diseases among various tribes, and as the Indian knew nothing of the nature of this disease, or of its prevention, it steadily gained a foothold upon them until today there is scarcely a family who lives a typical Indian life in whose homes there is not one or more consumptive.

The majority of Indian families are not particular about every-day habits, as cooking, washing, and ventilating their houses; and the log-houses or huts which the white man has taught them to build have become the breeding-places and the disseminating point of this dreaded disease among them, their friends and neighbors.

A word about their habits, hygiene, and sanitation will give a good idea of the ease with which this disease gains entrance into their homes. In early days they lived in tepees with plenty of fresh air and good ventilation, both day and night. They lived in the open, fed upon wild game, and were hardy, sturdy nations. They could and did endure all kinds of hardships and exposures. It is very different with the Indian of today. He has no physical endurance and is unable to perform hard labor. If left to himself he could not support his family by manual labor, for the reason that diseases, such as tuberculosis and syphilis, have sapped his vitality.

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*Read at the 31st annual meeting of the South Dakota State Medical Association at Mitchell, May 22 and 23, 1912.

They now live in small, poorly ventilated huts or log-houses with one or two small windows which admit very little light and no fresh air. These windows set tight in the cases so that they cannot be raised or lowered. During the long, cold winters indoors, with one or more consumptive patients, the only ventilation is by opening and closing the doors as they pass in and out of the houses. The Indian is careless about expectoration, and he deposits his sputa wherever he coughs, and, as we all know, this becomes dried in the dust and is breathed into the lungs of other members of the family. It also gains entrance through the food to the bowels and perhaps through the skin, although the contracting of the disease through the last avenue is rare even among Indians. The clothing of patients is not properly cleansed, and rarely is cleaned at all. On one occasion I saw the clothes of a boy who died of tuberculosis with suppurating tubercular glands on a brother of the deceased the day after the burial.

These unsanitary conditions, together with the lack of proper food and nourishment, have so debilitated the Indian of today that he is an easy prey to this disease.

Children born under these conditions are handicapped at the very beginning, there being poor nourishment, improper feeding, and bad ventilation. Before long the children develop diseased tonsils, adenoids, mouth-breathing, V-shaped mouth, and enlarged cervical and axillary glands. These glands break down and suppurate and form a regular island of infection. These sores are allowed to suppurate for months and cause much tissue-destruction, and, if able to heal this process, there is left a great deal of scar and tissue contractures.

Tuberculosis affects Indians of all ages, from early infancy to old age, but is more prevalent among children, resulting in a very high mortality. The more common types are pulmonary tuberculosis, tuberculosis of the bowels, tubercular meningitis, tubercular ascites, and tubercular laryngitis.

I estimate that from seventy-five to eighty-five per cent of the Indians residing upon the Cheyenne River Indian Reservation will react positively to a tuberculin test. My findings show that in four years of practice among these Indians in office consultation and in their homes, at least seventy-five to eighty per cent are tuberculosis subjects. The death-rate, if it were accurately given, would be more from this disease in its various forms than from all other diseases together, including so-called death from old age.

The care and attention now given by the Government is inadequate, and the authorities are unable to cope with this great problem. There is no equipment and no place to care for these patients in the way of hospitals or sanitariums. Allow me to say that I have no word of censure for the various Government physicians who have the care of the agencies and posts. I have had the pleasure of knowing several of them, and know them to be able physicians, but the enormous territory they are obliged to cover, and lack of proper medicines and places to care for the tuberculosis patients, prohibit much effective work in stamping out the disease. I have heard Government doctors say that "there is no use endeavoring to accomplish anything in eradicating this disease under the present environments," and the statement is only too true.

I dare say that most of the reservations of the United States would show as badly as does the report of the White Earth investigation in Minnesota regarding health conditions. There the State Board of Health succeeded in getting an appropriation for a hospital, and that Board expects to get all the Indian population of the state under its direct management, so that diseases may be handled as in all other parts of that state. In connection with this plan for South Dakota we should consider the inability to assume the responsibility for the Indian population of the state because of the small appropriations, that for 1910 being but $600. I am told that it was a little better last year, there being $1,600 available for use of the State Board of Health. This is hardly enough to run a county board, to say nothing of a great state board.

Gentlemen, we need an appropriation large enough to put our Superintendent upon a salary sufficient to enable him to devote his whole time to the improvement of health conditions, as other states are doing. The live-stock in this state is better protected than are the people against disease, with all apologies to our state and county health officials, who are doing all they can with the little money allowed by law. But is the lack of funds to permit the spread of tuberculosis among the people of newly organized counties in which there is an Indian population? It should be the object to secure co-operation with and aid from the Federal Government in controlling these conditions.

In a communication from Surgeon-General Wyman to our Secretary of the Board of Health it is stated that the burden of the care and prevention of disease in counties containing an Indian population must fall upon the counties having such Indian population. If this be true our new counties are face to face with great problems involving the public health and public expense.

For an illustration, the new County of Ziebach has a population of only about three thousand settlers and an Indian population of about eleven hundred. With seventy-five to eighty-five per cent of the Indians affected with tuberculosis in some form, how are we to protect the settlers when the Indian mingles with the public on all occasions? They frequent the stores and churches, and the children from homes having tubercular patients attend public schools. The Government doctors are few in number. One outlying district in the Cheyenne Reservation is from forty to sixty miles from the nearest Government physician. The station for the district is fourteen miles from our county-seat. They come to this county-seat town to trade and to secure what medical attention they can afford, because they cannot go to an outside physician without money, and as a result many go without attention because they are unable to pay.

If our settlers were in the midst of an epidemic of plague or diphtheria or some other dangerous disease, they would insist upon the strictest rules in dealing with such epidemic. But, since tuberculosis is a slow, sneaking enemy we allow it to steal upon our unsuspecting settlers and Indians and infect them with its slowly developing process, which in due course of time reaps its harvest.

Through the courtesy of Doane Robinson of our Vital Statistics Department I am able to give the following data as regards mortality from tuberculosis in South Dakota during the year 1910. With a population of 580,000 we had 270 deaths from tuberculosis. This is 5.8 per cent of the total mortality for that year. Upon the reservations out of about 16,000 Indians we had 160 deaths from tuberculosis and 81 from unknown causes. The large number of unknown deaths reported is due to the system of reporting, which allows the Indians themselves to report the death. Out of the unknown deaths it is safe to say that at least one-half were due to this disease in some form. Thus we have a total of 200, and adding all the deaths from the Indian country, 28 per thousand, as against 8 per thousand in the organized counties from all causes. Something radically is wrong, and effort should at once be made to correct it.

It is true that the death-rate from consumption is decreasing in the organized counties with an Indian population, due no doubt to association with white men, and the spread of general knowledge concerning the prevention of this disease. It is also true that the Indian has more regard for the instructions of a private physician than he has for the Government doctor. But let us not stop here. Let us invoke the aid and co-operation of the Federal Government to the end that more physicians, hospitals, and sanitariums be furnished for the proper care of these cases, thus reducing the disease to the minimum as we are doing in the state for our white citizens. Well-organized plans are being worked out by the various states for tuberculosis patients while the Federal Government is doing nothing for its wards, the Indians.

I have not touched on any phase of this question which concerns diagnosis, symptoms, complications, and treatment. These matters are well known to all, and there are those among us who do better justice to these subjects than the writer. But I will say that tuberculosis is to be found in all its forms among the various tribes of American Indians. It is also to be observed that the mortality is very high when any contagious disease, such as diphtheria, scarlet fever, or measles is spread among them, due, no doubt, to the weakened physical condition, and especially is this true in families who have suffered from tuberculosis.

.I now wish briefly to outline my plan to eradicate these conditions, and to suggest that such plan will work to great advantage in eradicating the disease from among the Indians.

First, there should be established two small hospitals upon reservations or Indian countries, such as we have in Ziebach and Dewey Counties. One should be for the isolation and care of incurable and advanced cases, and rules should be adopted compelling these cases to attend this hospital and receive treatment according to modern methods. The other hospital should be established for the care and treatment of incipient and curable cases. Here those in better health can secure treatment and instruction by means of lectures and courses to be given by the superintendent or physician. The more intelligent among the tribe will thus receive information that will enable them to do good work in the homes. This would reduce the cost to a minimum.

Second, contract physicians should be secured to superintend these hospitals. These superintendents should be required to give lectures and courses of instruction to patients and Indian attendants. They should make monthly examinations of all homes for new cases; examine school children; and, through the farmer or sub-agent by carefully trained Indian police, see that proper care is given to all Indians at home.

I am of the opinion that the plan above outlined will be gladly received by the Indians. They wish to be saved from this awful disease, and will cheerfully follow the rules and instructions.

Third, in connection with the foregoing plan the Government should require all the old log-houses and shacks which have been inhabited by patients to be burned, and sufficient of the trust moneys advanced with which to construct light, well-ventilated, and sanitary residences. And while some such plans are being worked out and established the Government should employ contract physicians at the towns nearest each station, and give them instructions and authority to examine school children, to isolate incurables and instruct incipient cases in the right manner of living, and to treat them scientifically at home as well as look after their food and clothing.

This paper may not be of universal interest and may have but little in it to commend it, but I base it upon my knowledge of the conditions in my own and other counties of the state having an Indian population. I feel it my duty as a health official of my own county and as a citizen of the state to place these matters before you to the end that you may understand the situation, and to urge that each and all lend a helping hand in securing the assistance of the Federal authorities in the work of making our state as free from tuberculosis among the Indians as it is now among our white citizens.

DISCUSSION

Dr. Theodore Riggs (Pierre): I enjoyed the paper very much indeed. It has been my privilege to live among Indians since I was a boy, and why I have not died of tuberculosis I do not know. It was certainly not because of any special sanitary conditions, for I was at all times exposed to infection.

The thing that interests me most is the doctor's idea of bringing about some means or method of teaching the Indians. We know that the white people are ignorant enough, but the Indians are still more ignorant. My father says that when he was a boy he cannot remember any Indian having tuberculosis. Now, we cannot go into a camp without finding plenty of it. The way the disease came among the Indians is a question, but it was undoubtedly contracted chiefly from the white people. There was practically no infection from tuberculosis thirty years ago—that I think is freely admitted. The doctor said he believes that now eighty per cent are infected. I think eighty per cent is too low. I do not believe there is a home where there is not a case of tuberculosis, and if the doctor's idea of starting out by destroying the houses where tubercular patients have been quartered is carried, I think he would destroy every house occupied by Indians, and I think they ought to be destroyed.

The solution of the question for the Indian is the same as it is for the white man, and that is through education.

I was interested in what the doctor said concerning the education of the Indians. It can be brought about by example. The white people can best be taught by example, and the Indian is not different in that respect. We would not allow a plague to come into our state without making great efforts to prevent it, and we certainly have a great plague right here in our midst, and too much cannot be said and done in the way of taking measures to eradicate it.

Dr. F. A. Spafford (Flandreau): I think at least ninety per cent of the Indians of South Dakota are tubercular, and I do not know what you are going to do about it until the National Government takes hold of this work. The ordinary house has been substituted for the Indian tepee, and such a house is usually about twelve by twenty-four or fourteen by twenty-eight, all the windows are usually nailed down, and at present it is almost impossible to get the Indian out doors. In our section of the country at Flandreau, where I have been physician on the reservation for a great many years, we have to drive them out into the open air. They want to live right in the house, and when you send them home they go home to one of these small houses, as I say, fourteen by twenty-eight, which frequently contains a large family of children.

I think the campaign started in northern Minnesota a short time ago, and which has been pushed by Dr. Bracken of the Minnesota State Board of Health, has done more to stir the Government to a realization of the conditions existing among the Indians than anything else that has ever been done. We are not going to be able to do anything unless the Government takes up the matter.

It is only a question of time when every Indian will sever his tribal relations and be maintained at the expense of the county unless some change is made. There was a nice circular issued some time ago by the Government showing how the Indian's home could be transformed into a most sanitary residence. The house was to be fourteen by twenty-eight, one room to be painted white and one-half of the home taken up with bed-rooms supplied with white enamel bedsteads, and that was all to be kept in a sanitary condition by an Indian family having from twelve to fourteen children. What do you think of it?

Dr. R. J. Jackson (Rapid City): I believe one of the most pressing needs in removing tuberculosis among the Indians is the establishment of better conditions among non-reservation schools. I have been in charge of non-reservation schools at Rapid City, and in a room one-half the size of this we have sleeping accommodations for from forty to sixty boys. When the boys go to bed the disciplinarian puts up the window from six to eight inches, and when he goes out the boys get up and put it down. I believe the Government is very much to blame. The sleeping arrangements at the Indian school are nothing short of abominable. If the physicians who are in charge of these schools would make a concentrated effort in bringing the matter properly to the attention of the authorities at Washington a good deal might be accomplished.

The best way of educating the Indian is by an object lesson. We have applied that principle there since Mr. Ballentine asked me to do so. I want to tell you how we have arranged your sleeping dormitories in Indian schools. The plan is this: The dormitory is surrounded by an outside porch of a width of perhaps seven or eight or ten feet, and the children are supplied with two blankets, one heavy and one light. The beds are so arranged that they can be slid to the inside, and when the children are prepared for bed their beds are drawn on the inside and the children are put to bed in a warm room. Then the window is pushed up and the bed is slid out, and the door is slid down behind the bed. In the morning the doors are raised and the beds are slid back into a warm room where the children are allowed to dress. I believe tuberculosis among the Indians in these schools could be reduced by one hundred per cent if such a method were adopted. The Indians are very observant, and an object lesson like that is never lost upon them. The parents of the children realize when the children get home that, instead of being emaciated and run down, with the glands of the neck swollen up, they come home in the best of health and in a robust and well-fed condition, and the parents naturally inquire the reason why. I believe that will get at the root of the matter better than by any other plan. I propose to continue that work with the department at Washington and also to get into communication with the Government official at every Indian school in the United States during the coming winter, and make an effort to see if something definite cannot be accomplished along this particular line.

Dr. Fred Treon (Chamberlain): In 1886 I entered the Indian service in South Dakota, only four years later than Dr. Riggs says there were no enlarged glands among the Indians. While, to be sure, I was not at the agency or on the reservation where he lived, yet I found almost a similar condition of affairs existing at that time as exists today. For twelve years as physician and agent in South Dakota I kept at the authorities with hammer and tongs along these lines, but nothing of consequence has been done. The death-rate has steadily increased until at the present time I think it safe to say that seventy-five per cent of the deaths among the Sioux are caused by tuberculosis. The death-rate at Crow Creek during the time I was there was much larger than that given by the gentleman who has spoken here today. I think at the time I went to Crow Creek Agency there were about eleven hundred Indians there, and the death-rate has been just about sixty-five every year, and seventy-five per cent of those deaths have been from tuberculosis. The conditions at Crow Creek are only samples of the conditions on other reservations. The home environments have been described. The lack of ventilation, the windows plastered up until no air can get in, dirt floors, etc., indicate the conditions found on every Indian reservation, and these conditions are factors that are most conducive to the spread of tuberculosis. It was my good fortune to be sent for a year to Arizona during the time I was in the Indian service, where I was located among the White Mountain Apaches, who live altogether out doors. They do not know what a tepee is. They erect simply little wind-breaks. There, tuberculosis was just beginning to invade that tribe and the Indians were beginning to die off, although a great many white people go to Arizona and get well of tuberculosis, yet these Indians are now dying from that disease almost as rapidly as they are in the north. Just when tuberculosis invaded the Indian camp I think is the difficult thing to decide. Twenty-four years ago Dr. Graham, who was then in the Indian service, read a paper here in Mitchell before the State Medical Society on tuberculosis among the Sioux. At that time he and I differed somewhat about the origin of tuberculosis among the Sioux. I had found that in an early day syphilis had been very prevalent and had probably been introduced by the United States soldiers among the Sioux women. He did not believe that syphilis would necessarily produce tuberculosis. I, however, believed that it had lowered the vitality of the Indians to such an extent that they became easy victims to the disease. Where the infection originated I am unable to determine, but Dr. Graham and myself made a good many microscopical examinations of the glands, the sputum, and discharges from the mesentery. We were unable at any time to establish any evidence that the trouble was attributable to anything but the true tubercular bacillus. The fact, however, remains that the Indian in the early days did have syphilis to contend with, and I believe that the lowering of his vitality contributed to the conditions which we find today. I think now the thing to do, is not so much in the way of forcing radical changes, as it is to educate. These people must be educated how to live, and it is a matter that cannot be done in a day, in a month, or in a year. Dr. Riggs has struck the proper remedy when he suggests education. Help must come from the Government. It must come from Washington, and I think the movement started here yesterday cannot but be fruitful of very beneficial results, not only to the Indians, but also to the whites.

Dr. F. H. Creamer (Essayist): I have listened with interest to the remarks of the various doctors who have had experience along this line. The main issue is the one mentioned by Dr. Spafford. How are we going to eradicate this thing? The State Board of Health has not sufficient funds to put these Indians on the same basis that white people are on, and my idea in placing this paper before you was to secure co-operation from every physician here to take this matter up with his representative, with his state senator, and with the senator and representative in the United States

Congress, and thus have some pressure brought to bear upon the Government to the end that these conditions may be eradicated.

Dr. Riggs said tuberculosis has been increasing the last few years. It is also true that tuberculosis has existed practically since the first Indian trader began to do business in this country. Tuberculosis is not a new disease by any means.

It is my idea to start this movement right away, and let us make it our ambition to get something done.

My idea may be a foolish one in regard to these hospitals, but this scheme has been worked out in Minnesota and in various other states.

Tuberculosis among the Indians can be wiped out in time if we go at it in the right way, and the Government is the proper channel through which to work. The Government must furnish physicians for these Indians. One district, to my knowledge, has never had a physician. I am told that at one time there was but one physician for the entire territory west of the Missouri river, which was called the Cheyenne River Reservation. That is a big territory to handle, and justice cannot be done to it by one man. We must not only look at this from the standpoint of the Indian, but, on account of his associations with the white people, we must keep in view the effect upon the white man, as well.

THE CONSERVATION OF HEALTH*

By Winslow C. Chambers, M. D.
BLUE EARTH, MINN.

The trend of the world today is toward conservation. It is a natural outcome of the economic conditions which necessarily follow the marked multiplication of the human race and the increase of material things. We must conserve our natural resources, in order to protect posterity, for coal, iron, gold, and silver mines and forest and agriculture lands must be made to go as far as possible, and the great waste which has characterized the American people the last half century must be reduced. If this is true of the natural resources, how much more can it be applied to the conservation of our national health, for the health of the nation is its greatest asset?

The masses little realize what an important part health-sanitation plays in this respect. It seems to be an inborn characteristic of the human family that superstition,—anything occult, and strange and unreasonable,—appeals to the masses much sooner than anything practical or common-sense, and it is this tendency that we must overcome by education; and it is only by the constant teaching and preaching on subjects pertaining to public health that we can ever expect to reach the people, who can do so much toward effecting proper and sanitary laws. Dr. Mayo truthfully said that fifty per cent of the diseases and troubles of today are brought about by lack of knowledge, and half the remainder, by lack of sanitation.

The advancement of medical science during the first quarter of the century has been remarkable along all lines, and sanitary science has developed along with medicine and surgery. The old idea, that material things rather than personal were the chief causes of spreading infectious diseases, is a thing of the past. Personal contact is a vital influence which must be controlled, in order to control the spreading of infectious diseases. These advanced ideas must be taught to the people through newspapers, schools, lectures, and the platform, but the greatest factor must be the physicians themselves, for it is their influence which shall cause these sanitary subjects to be discussed, and it must be brought about by the united and co-operative efforts of all physicians, no matter to what school they belong. The importance of these questions and the cost of a preventable disease, both in lives and dollars, are shown in reports compiled from the data of the last census of the federal hospital service, which states that tuberculosis alone cost this country, in lives taken, $250,000,000 a year and in expenses for medicine, food, medical attendance, and loss of wages $90,000,000. The estimated value of 33,000 lives lost from typhoid fever is $212,000,000, and the estimate of all contagious diseases $750,000,000 a year, of which forty per cent, or $300,000,000, is preventable. It has been asserted that one year's loss from these diseases would pay the national debt. By these figures we see the enormous waste in money, while the suffering and mental worry and agony cannot be estimated; and when we consider that the cost of preventing all this waste is so small in comparison with the damage done, is it not time that we should turn our attention to these matters of contagion? We are beginning to realize the great importance of these questions, not only in the interest of the persons afflicted themselves, but also as an economic problem. Nowhere has this principle of sanitation been brought to bear upon economic problems as in the Panama Canal zone and our insular possessions, for it has been here that we have been able to work out effectively methods of prevention and cure of tropical diseases. The Panama Canal could never have been a success had it not been for the sanitary commission and its victory over the mosquito, the cause of yellow fever. No place in the world is there better sanitation than on the Isthmus, where the death-rate is lower than that of any important city in the United States, notwithstanding its tropical climate. Here the work has been in the hands of experts along sanitary and economic lines under governmental supervision, and public health and sanitation are held to be supreme in importance. Here also public hygiene and preventive medicine have been held above the personal rights of the individual, and while the treatment of the individual is a personal, not a governmental, matter, the relation which the individual bears to the community at large in regard to infectious diseases and sanitation is one which should be under control of the state. The Panama Canal will be one of the great achievements of the country and will be a great benefit to the American people commercially, but it also should teach us the important lesson that much of the disease that mankind is subject to is due to ignorance and is preventable and that it can be overcome in a large measure by proper sanitary laws and proper improvement of the same. If the American people shall properly profit by this one lesson in sanitation, the building of the canal will serve two great ends. Congress is waking up to the importance of health measures, and it is hoped that in the near future some adequate health bill may be passed. It would seem that a bill creating a Department of Health with a director and uniting the Public Health and Marine Hospital Service, the Bureau of Chemistry, and the Division of Vital Statistics under one head would be in the right direction. Such a bill should not infringe upon personal rights, leaving the treatment to individual physicians. It should undertake only to investigate the cause of the disease and to try and conserve the health and lives of the people and to give such assistance as is desired to the various state governments.

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*Read before the Blue Earth Valley Medical Society, July 13, 1911.

In the present congress Senator Owen introduced a bill dealing with this subject, and while it seems unlikely that it will pass at the present session it is surely a step in the right direction. A federal department of health is more necessary than any of the other chairs in the Cabinet, for it affects the people, both economically and financially, more directly than any other department. Much money, time, and energy have been wasted and foolishly expended along lines of suppressing contagion, which, at the first glance, appear to be in the right direction, but when we come to analyze the efforts from a scientific standpoint we find them lacking in many respects. For instance, different municipalities expend large sums of money for taking care of the garbage nuisances and other offences, while the medical-inspection and quarantine departments, which really have more bearing on communicable diseases, are hindered for lack of funds. The point here is, that, while municipal house-cleaning is important and should be attended to in a very thorough manner, it is not, however, the chief factor in stamping out various epidemics. To do this we must go to the source itself and eliminate the danger at the starting-point. Here is where the energetic and efficient health officer must do the work, for it is surprising the amount of ignorance, selfishness, and deception that are found in dealing with these cases. It is much wiser and safer to keep a tuberculous patient under control by educating him in the proper disposal of sputum, than to expend large sums of money in cleaning up after him, hoping in this way to eliminate the danger.

Having seen how necessary it is that something should be done toward reducing the death-rate from preventable diseases, it is time that we should find some effective means whereby this may be successfully accomplished. One of the chief methods used in conservation is that of placing inspectors over the various resources, as, for instance, forest inspectors, fire inspectors, and building inspectors. As yet we have no medical inspectors under state control, although in one or two cases there are medical inspectors of schools. It might be stated here that perhaps the word *inspector* is an unfortunate one to use in connection with public-health matters, for it carries with it in the mind of the laity the old idea, that of an official examination and oftentimes of police interference, while, if the word *supervisor* should be used, instead, the implication being that of overseeing and supervising, the public would not feel so antagonistic towards those who seek to enforce sanitation. Any doctor who has had any experience with local health matters knows that it is a thankless task, and that the time and labor that are put on such matters, are poorly paid for, to say the least, and, besides, the health of the State is not a local affair or a private affair, but is an intercommunity affair, and one which the State as a sovereign power should have control of, for an epidemic started in one locality spreads all over the state, as in the case of the typhoid epidemic in Mankato. The State having control of these matters can hire experienced and efficient men on an adequate salary, who can devote their entire time to the subject, but, under the present regime, this is impossible to do. It is true that certain municipalities have well-paid medical inspectors or health officers, and here the public health is better looked after, but only the larger cities can afford to have this luxury. It has been said that this would give the State Board of Health more power, but it is a noticeable fact that wherever centralization of public-health matters has been accomplished, the public health has been bettered to a marked degree.

As to the objection of cost: This is immaterial, for the cost would be so small in comparison to the money saved there can be no argument there. Most of the objections to such legislation are based upon ignorance and lack of consideration of the subject. It is this lack of real appreciation of what public health means and the knowledge of how to obtain it that we must constantly keep in mind. We must strive in every way possible to impress upon the people at large that public health is the finding and supervision of infected persons of all kinds, even those of a tuberculous character, and by this means prevent the spread to others. One of the most potent factors that can be brought to bear on the conservation of health, is the sanatorium for tuberculous patients, which has been developed to a remarkable extent the last few years. These sanatoria have been the means, more than any other one factor, toward prohibiting the spread of the white plague, for it is here that the consumptive learns how to take care of himself, how to live, and, above all, how to dispose of those secretions which are so harmful and which tend to spread that dread infection.

One other factor which is of great importance along this line, is the supervision by the State of the water and sewerage systems in the various municipalities, for by this means may typhoid fever, which is one of the most preventable of infectious diseases, be controlled in a great measure, for it is stated that fully one-third of the typhoid cases of the state are due to the water-supply alone, and the rest to contact, flies, and milk, but the elimination of one would in a great measure tend to eliminate the rest of the sources.

Three very important bills pertaining to these public health questions were introduced at the last Legislature, namely, a bill creating public health inspectors; a bill drawn by a special tuberculosis commission, which was an act to create the State Tuberculosis Commission and to establish and maintain public district tubercular sanatoria, to include all classes of consumptives; and a bill which would compel municipalities to furnish the State Board of Health plans and specifications of sewer and water installations and extensions so that the Board could supervise the construction of these and thereby lessen the chances of a poor water-supply and eliminate typhoid. These three important health measures were defeated by the Legislature for various reasons which might have been overcome by the united efforts of the medical profession of the state.

It is said that medical legislation is the hardest of all legislation to pass, for in most cases the physicians themselves are not united on the proposed measures, but it would seem that anything pertaining to preventive medicine and sanitation would be of so broad a character that all physicians, irrespective of schools and theories, would use their influence toward furthering the advancement, in every way possible, of these important health measures.

It is time now to start a campaign of education and to teach the people how necessary to humanity public health is, and in this way the legislation of the future may be molded to rectify some of the grave mistakes of the present day, for, at no time in the history of the world, has the public mind been as receptive to anything pertaining to good health as it is at the present. The people at large are ready for reforms, and public opinion is being united and centralized toward combating these evils, which have such a marked influence on the conservation of public health. These subjects are being discussed upon the public platform, in the newspapers and periodicals, in schools, and in the home. Courses in sanitation are being instituted in our normal schools and in all teachers' institutes, and like courses of instruction should be held for by no other means can the lesson of preventive medicine and sanitation be instilled into the public in so favorable and effectual a manner as through school-teachers. Homes can be reached in this manner through the medium of the children who have been taught the benefits of sanitation in the school. District-nursing has been instituted in many of our large cities. The campaign against the fly has started all people to thinking, and now when these questions are popular we must continue to discuss them and to use every means available to bring these reforms before the public, for by these means can the health and economic conditions of the country be improved and conserved.

PROGRESS IN MEDICINE

Abstracts of medical reprints and articles on file in the library of the Department of Medicine, College of Medicine and Surgery, University of Minnesota.

UNDER THE CHARGE OF

DR. CHAS. LYMAN GREENE

Professor of Medicine and Chief of the Medical Clinic

These abstracts are read and discussed at the departmental meetings held monthly at the University Hospital.

A STUDY OF THE PYROGENIC ACTION OF LACTOSE

Reprinted from the American Journal of Diseases of Children, February, 1912, Vol. 3.

BY F. W. SCHLUTZ

The question whether a food component, if introduced into the intermediary metabolism unchanged, is capable of developing pyrogenic action, has received renewed interest since Finkelstein first published his observations on alimentary intoxication. Finkelstein designates such as alimentary fever. The so-called buttermilk fever of Tugendreich has been regarded in the light of a sugar fever. Affected by some change or inflammation, the intestinal wall becomes permeable for substances which otherwise it does not permit to pass unchanged. Most of the experimentation upon lactose has been directed primarily toward the determination of the tolerance of the organism for lactose and then secondarily toward the factors which influence this tolerance in health and disease.

These results, and the definite clinical evidence that there seemed close connection between lactose and the production of the pronounced symptoms of alimentary intoxication, principally the fever, led Finkelstein to look on lactose as a substance possessing pyrogenic properties.

Meyer and others experimenting with the salts brought out a new factor that caused Finkelstein to regard the pyrogenic action of the sugar as possibly a salt action. Finkelstein considered that the fever was brought about through some physical action of these substances, essential to which was a preliminary breaking down of the apparatus which maintained the constancy of the tissue fluids. Through this breaking down the salt or the body analogous to it, in this case lactose, entered the circulation in such large amounts that the physiologic state of concentration was altered, and this alteration resulted in fever. There was another possibility. The breaking down of the barrier caused an alteration of vital factors which, under normal conditions, would prevent pyrogenic action of these substances.

Schaps observed typical temperature rises after subcutaneous injections of isotonic solutions of NaCl, as well as solutions of dextrose and lactose. The fever reached its fastigium after eight or ten hours and disappeared after twenty-four hours. Only osmotically equal solutions of mono- and di-saccharids seemed to possess pyrogenic action. This fact led Schaps to conclude that the action of sugar was analogous to a salt action, a view which Keller had at one time expressed, and that the pyrogenic effect was brought about in the following manner: Salt, or the substance physically analogous to it, in this case lactose, acts pyrogenically when it enters the circulation, either directly, as a substance possessing pyrogenic action, or by virtue of an alteration in the molecular concentration, which its presence in the tissue fluids occasions.

Five injections into rabbits given by Schlutz with distilled water were followed three times by febrile reactions. Lactose alone was given intravenously twenty-three times with nineteen positive reactions. One animal died five hours after the injection with convulsions. The autopsy was negative. In two other series combinations of physiological salt solutions and lactose, and Ringer's salt solution and lactose, were injected. Twelve subcutaneous injections of lactose were given in which only seven animals reacted positively. The results were distinctly negative. Neither the amount of fluid used nor the concentration had any appreciable effect on the temperature. Finally, lactose was given alone and in combination with physiological salt solution orally. First in a series of healthy rabbits, that is, rabbits free from any apparent alimentary disturbance, and then in a series of rabbits in which more or less pronounced intestinal disturbance had been produced by feeding beta-oxybutyric acid and croton oil, respectively. The administration of the sugar and combined sugar and salt solutions was begun with the onset of the diarrhea.

Reviewing the series as a whole, the reaction was positive in fourteen out of sixteen experiments. Individually also the rises above the control were higher than in any of the other experiments, reaching or exceeding in five instances 1° C. Schlutz's results are at variance with those of Schamps and Leopold and v. Reuss, and coincide in the main with those of Rosenthal.

The results of the experiments warrant the following conclusions:

1. Lactose, if given intravenously, subcutaneously, or orally, possesses no distinct pyrogenic effect, no matter in what concentration or amount it is given.
2. It does possess a definite, though not pronounced, influence on the temperature if it is given subcutaneously or orally in an animal with a diseased intestinal tract in combination with a medium containing a sodium salt, such as physiologic or Ringer's salt solution.

These results though definite are hardly so to the extent expected when one considers the pronounced effect produced clinically by the administration of lactose in similar conditions, and are far from explaining the pathogenesis of the fever occurring in alimentary intoxication.

J. P. SEDGWICK.

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CAFFEIN OR ALCOHOL

The man who seeks an aid to increase his mental or physical output not infrequently resorts to coffee or alcohol. Either may be used intemperately, but the effect of alcohol has been proven to be unsatisfactory and usually retards both the mental and the physical forces. It has been shown by experiments and observation that the use of alcohol as a stimulant is wholly unreliable, and the experimenter who attempts a mental or physical flight from an alcoholic foundation commonly finds himself on a lower level when he lands.

Dr. H. L. Hollingsworth, in *The Archives of Psychology*, for April, 1912, writes an interesting article on "The Influence of Caffein on Mental and Motor Efficiency." Sixteen subjects, ten men and six women, were engaged under formal and six women were engaged under formal concontracts to give their time conscientiously to the tests during forty days. None of the subjects ever knew when they were receiving the caffein, as it was given from time to time in pills, capsules, or in water. There was a preliminary control-period of several days, during which no caffein was given, and a routine of life was established. When the caffein was given a gain in rapidity of muscular movements was noted, but the greatest degree of stimulation was not over 8 per cent. This was demonstrated by making dots at the highest speed, a simple and not a skillful act of neuromuscular facility.

Tests demanding accuracy of aim and refinement of coördination showed a gain in efficiency, except with large doses, which caused some unsteadiness. The effect of the drug was felt in about an hour and lasted as long as four hours without damaging reaction. The mental processes were increased in proportion to the amount of caffein used.

Caffein is distinctly unfavorable to steadiness of movements requiring the subject to exercise extraordinary precision. Headache, irritability, and sleeplessness were reported by some of the subjects, but had no fixed relationship to former abstinence or absolute dosage. Evidently, different individuals are affected according to their mental and physical construction. Those who suffered from initial fatigue responded more promptly to the stimulation than those who were well rested when the drug was taken. The stimulation is also delayed when caffein is taken with meals.

The one positive effect which was noted was the absence of a phase of depression. "Caffein and alcohol have this in common: that they both abate the sense of fatigue. Both give the user a feeling of ease and facility; but with caffein this feeling is the accompaniment of a truly enhanced capacity for work, while with alcohol it has often been shown to be a subjective illusion." Hollingsworth found that subjects employed in copying literary extracts on a typewriter did not gain in speed, but the correctness of the copy was in marked contrast to data regarding alcohol. Among abstainers the effect was much the same as upon habitués.

The writer concludes that the facts so carefully gathered are unexpectedly favorable to the "cup that cheers." During the past few years chemists have attempted to extract the caffein alkaloid from the coffee bean on the assumption that caffein is harmful or, at least, is better for the individual who does not benefit by drinking coffee. The average coffee-drinker, one who appreciates the stimulating effect of caffein, will look upon this process with as much glee as does the husky lad who has heard that a company has been organized to extract the wind from the succulent garden bean.

The majority of people drink coffee with pleasure and benefit, and only an exceptional one finds it disagreeable and unhealthy. As compared to alcohol, coffee is safer, and its effects are more lasting and less demoralizing. Two large cups of coffee contain about six grains of caffein, and it is about the average amount consumed by the majority of adults each day. Beyond this amount the dose is more or less toxic and may cause unsteadiness of thought and purpose and may ultimately lead to physical or mental disturbances.

THE 15TH INTERNATIONAL CONGRESS ON HYGIENE AND DEMOGRAPHY

The coming meeting in Washington, September 23d to 28th, of the International Congress on Hygiene and Demography, promises to be the greatest convention of its kind ever held in any country. Representatives from all over the world will be present, three hundred delegates coming from Germany alone, and if this is an index of what other countries will do, Washington will be crowded with sanitarians and doctors. There will be a large sprinkling of public-spirited men from other states in the Union, mainly on account of the varied subjects which will be discussed at the sessions and which will form a part of the greatest hygienic exhibit ever seen.

Any one may become a member of the Congress by sending $5.00 to Dr. John S. Fulton, Secretary-General, at the Senate Annex, New Jersey Avenue and B St., Northwest, Washington, D. C. This membership fee will entitle the holder of the card to attend any of the sessions that he may elect, and he will receive thereafter the volume of transactions of the Congress, which will cover more than 3,000 pages.

The last International Congress on tuberculosis, which met in Washington a few years ago, had a membership of 6,700, and the membership of the present Congress, which embraces the entire field of preventive medicine, will probably be very much larger.

Minnesota is planning to participate in the exhibit, not as a separate exhibit from the state, but to contribute to the general exhibit on the various subjects.

Meetings of the Congress at the various Continental cities demonstrated that definite and permanent sanitary improvements followed. Meetings have been held in Paris, Madrid, London, Vienna, the Hague, Geneva, Turin, and again at Paris.

The census reports, which are a sort of check upon the vital statistics of the country, show that an enormous number of lives have been saved by these discussions, which have been participated in by well-known men interested in public medicine. A meeting of this kind is the most forceful argument against the rise and fall and the tom-tom beating of the so-called reformers, who are antimedicine and anti-everything else.

At the next meeting, for instance, the exhibition will be divided into the following groups:

Group	I.	Vital Statistics and Demography.
Group	II.	Growth and Nutrition; Food.
Group	III.	The Hygiene of Infancy and Childhood (including Prevention of Infant Mortality and School Hygiene).
Group	IV.	The Physiology and Hygiene of Exercise.
Group	V.	Housing.
Group	VI.	Industrial and Occupational Hygiene.
Group	VII.	Communicable Disease.
Group	VIII.	State and Municipal Hygiene.
Group	IX.	Care of the Sick; Life-Saving.
Group	X.	Hygiene of Traffic and Transportation.
Group	XI.	Military, Naval, and Tropical Hygiene.
Group	XII.	Sex Hygiene.

This array of subjects covers such an enormous field that it would seem to the casual reader as if there was nothing left to the opponents of hygienic advancement. Each one of these topics will be discussed by experts in every line, and the good which comes from such a discussion cannot be over-estimated.

It is hoped that Minnesota will show a large attendance, and every man who is interested in hygiene and sanitation should attend the Congress, or, at least, should be enrolled as a member, in order that he may receive the volume of transactions.

OUR NEWS ITEMS NOT INFALLIBLE

Had we not already known that our news items are carefully read we should know it now; for a bunch of letters has come to us since our last issue that bear somewhat emphatic evidence of this fact, and all because we said that "Dr. David R. Johns, of Fair Haven, is fitting up the Star Hotel of that place for hospital uses."

Some of these letters are courteous and some are not. Some people seem to appreciate the fact that one may innocently make a mistake, while others seem to think that back of even a typographical error is a diabolical spirit. One of our correspondents evidently thinks that the editor was born before the days of practical eugenics. Perhaps he was. We are making no assertions: we are just stating what our correspondents seem to think.

Now, what are the facts? For every issue of The Journal-Lancet we receive five times more near-news items than we use. In fact, about every item concerning a "Dr." in the Northwest comes to our table. The first rough sorting cleans out the dentists, the veterinarians, the osteopaths, the neuropaths, the divine healers, and the divinities themselves. This classification is not intended as a climax or an anticlimax: it is just a partial list of "Drs." that we cannot use.

After this first sorting, every unfamiliar name left on the list is carefully scrutinized, and no mention is made in our columns of anyone who is not a graduate in medicine; and, moreover, he must have received a license to practice if his name is to be rescued from oblivion by insertion in our news items. And still further: he must have done something to deserve this mention, such as having built a hospital, having married, or having died. Mark you, these are illustrative reasons for admittance to our department. There are others, but not perhaps quite so commendable.

Now, this brings us up to, or near to, our innocent item. One correspondent says: "Prehaps [it is the way he spells it in his own handwriting] it would have been a little better if you had put 'P. D.' (Plaster Doctor) after his name." Another friend says: "I would like to ask when the editor conferred the title of 'Dr.' on the likes of this fellow, and also when did THE JOURNAL-LANCET take to hobnobbing with the plaster pasters of the John Till type?"

And now for the facts. The innocent-looking item came with the grist, and all the usual tests were applied, and "Dr." Johns received his card of admission. In our issue of February 1st, page 82, will be found the official list of physicians who were admitted to practice in Minnesota by the State Board of Medical Examiners in January, 1912, and under the sub-heading "by reciprocity" will be found "Johns, David R. ......Col. of M. & S., Chicago, 1910." The Yankee plead guilty to the charge that wooden nutmegs were *made* in Connecticut, but he insisted that they were *sold* in other states. And we ask ourselves, Is Minnesota a manufacturing or a consuming state?

But, seriously, have the Johns got mixed up? We hope to hear from our correspondents and the State Board of Medical Examiners upon this point.

NEWS ITEMS

Dr. A. Eagon has moved from Olivet, S. D., to Loomis, S. D.

Dr. Charles H. Mayo, of Rochester, has returned from his European trip.

Dr. Warner has succeeded to the practice of Dr. H. H. Hewitt, of Freeport.

Dr. G. F. Wareheim has moved from Jamestown, N. D., to La Moure, N. D.

Dr. Olaf Haraldson, a graduate of Rush, is doing post-graduate work in Chicago.

Dr. Charles Richards, of Sturgis, S. D., died on August 11th at the age of 40 years.

Dr. Alexander Barclay, of Cloquet, has sold his hospital there, and will take up private practice.

Dr. A. J. Kirghis, of Sauk Center, has returned from Paris after an absence of three months.

Dr. D. L. Dunlap, Physical Director of the University of North Dakota, has resigned his position.

Dr. Axel A. Pesonen, of Hibbing, has moved to Duluth and will take up the practice of the late Dr. Jackola.

Dr. W. W. Higgs, formerly of Eveleth, but late of Alliance, Neb., has located permanently at Park Rapids, Minn.

Dr. D. H. Jones, of Gaylord, after attending the State Meeting at Duluth, went to Chicago to do special work in clinical surgery.

Dr. A. D. Haverstock, of Everly, Iowa, has moved to St. Paul, and will succeed to the practice of the late Dr. A. P. Maschger.

Dr. S. B. Haessly, of Red Wing, and Dr. A. M. Hanson, of Seattle, Wash., have formed a partnership and will locate at Faribault.

Dr. A. C. Tanner, of Federal Dam, who recently joined the staff of the Rood Hospital, will be located at Chisholm, instead of Hibbing, as recently announced.

Dr. Ed. Freese, for the past three years connected with the Grant Hospital, of Columbus, Ohio, has located in Jamestown, N. D. and entered into partnership with A. W. Guest, of that city.

Dr. C. S. Bigelow, of Dodge Center, has located permanently at Madison Lake, his son, Dr.

C. E. Bigelow, as already announced in these columns, taking up the father's practice at Dodge Center.

Dr. Albert B. Wood, of Pennsylvania, who has had several years' experience in public-health work in the East and South, has been made acting health officer of Rochester. He will work under Dr. C. H. Mayo.

Seven prominent physicians of Minnesota will represent the state and take an active part in the session of the fifteenth annual Congress on Hygiene and Demography, which will convene in Washington, September 23d to 28th.

Dr. David M. Aronsohn, of Glascow, Mont., died in St. Paul on August 1st at the age of 35 years. Dr. Aronsohn graduated from the State University in the class of '05 and practiced in Montana until a year ago, when his health failed.

Dr. R. T. Glyer, member class of '09, State University, has recently moved from Superior, Wis., and located at Brooten, Minn. He is also a member of the staff of Sunnyside Hospital at New London, which was dedicated last month.

Dr. Geo. W. Beach, a graduate of the University of Paris, and until recently connected with the Iowa state sanitarium, has been appointed, by the Minnesota State Board of Health, superintendent of the Minnesota sanitarium for consumptives at Walker.

Dr. E. B. Hoag, Supervisor of Schools, Burkley, Calif., has been engaged by the Minnesota State Board of Health to carry on a year's campaign in Minnesota for medical inspection. Dr. Hoag is eminently qualified to do this work, and success will surely crown his efforts.

The Baby Welfare Association of St. Paul has been in existence one year, during which time 1,200 babies have been examined, 15,000 bottles of milk have been dispensed in needy cases, and 1,250 visits were made by the nurses. A third nurse will soon be added to the staff. Dr. Walter R. Ramsey remains the medical director.

The Sioux Valley Medical Association held its annual meeting at Fort Dodge, Iowa, on January 24th. Physicians from Iowa, South Dakota, and Minneapolis are among the officers elect for the coming year. The officers are as follows: President, Dr. J. Warren, Sioux City, Iowa; first vice-president, Dr. A. F. Stevens, Sioux Falls, S. D.; second vice-president, Dr. A. E. Spalding, Luverne, Minn.; secretary, Dr. G. S. Browning, Sioux City, Iowa; treasurer, Dr. W. Brock, Sheldon, Iowa. A smoker in the evening followed the meeting.

PHYSICIANS GRANTED LICENSES AT THE JULY (1912) EXAMINATION TO PRACTICE IN SOUTH DAKOTA

Brooks, Charles N.	Jenner Med.,	1910
Elmore, Ernest H.		1910
Gage, A. E.	Kentucky,	——
Holgate, Ralph C.	Northwestern,	——
Johnson, Leslie	Creighton,	——
Luck, Hilda	Barnes,	1905
Shirley, John C.	Northwestern,	1911
Smedley, Irene	U. of Illinois,	1912
Standeven, John T.	Creighton,	1911
Sutton, D.	Louisville,	1910
Thompson, T. G.	Jefferson,	——

PHYSICIANS LICENSED AT THE JULY (1912) EXAMINATION TO PRACTICE IN NORTH DAKOTA

UPON EXAMINATION

Bedford, G. V.	U. of Manitoba,	1912
Donker, A. E.	Grand Rapids Med. Col.,	1907
Emmert, Harry F.	U. of Minnesota,	1912
Kane, Louis M.	Northwestern,	1912
Scanlan, Wm.	Hamline,	1896
Weed, Frank E.	U. of Minnesota,	1912

BY RECIPROCITY

Fuller, Judd D.	Marquette,	1910
Goodheart, C. J.	U. of Minnesota,	1909
Holgren, Knute D.	Northwestern,	1910
Kamman, H. F.	Col. of M. & S., Chicago,	1910
Kurz, John W.	U. of Minnesota,	1909
Nickerson, B. S.	U. of Minnesota,	1903
Nickerson, W. S.	U. of Minnesota,	1904
Vinge, Syver	U. of Minnesota,	1902

POSITION WANTED

Position as assistant to practitioner in Minneapolis with large practice in Obstetrics or diseases of children. Three years general practice; willing worker; good address; married; graduate No. A1 school. References and personal interview. Address W. M., care of this office.

PRACTICE FOR SALE

My general practice in Minneapolis, worth about $5,000, goes to the purchaser of my residence, a 9-room modern house and large barn in good neighborhood. Price, $5,000. This is an exceptional opportunity for anyone wishing to get a start in city or a city man wishing to increase his practice. I am going to specialize. Address E. M., care of this office.

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF MINNESOTA FOR THE MONTH OF MAY, 1912

REPORTED FROM 81 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	0															
Albert Lea	4,500	6,192	9															1
Alexandria	2,681	3,001	6													1		
Anoka	3,769	3,972	10											3				
Austin	5,474	6,960	5	2														
Barnesville	1,326	1,353	1															
Bemidji	2,183	5,099	5												1			
Benson	1,525	1,677	1	1														
Blue Earth	2,900	2,319	1	1														
Brainerd	7,524	8,526	11	4											1			
Breckenridge	1,282	1,840	1															
Canby	1,100	1,528	1													1		
Cannon Falls	1,239	1,385	4		1													1
Chaska	2,165	2,050	5															
Chatfield	1,426	1,226	1													1		
Cloquet	3,074	7,031	7	1		1									1			
Crookston	5,359	7,559	8	1		2										1		2
Detroit	2,060	2,807	0															
Duluth	52,968	78,466	94	11	3	8					4			1	2	3	1	7
East Grand Forks	2,077	2,533	2	1												1		
Ely	3,572	3,572	12	1	1	2									2			1
Eveleth	2,752	7,036	2	1														
Fairmont	3,440	2,958	4	1		1	1									1		
Faribault	7,868	9,001	5			1												
Fergus Falls	6,072	6,887	13	1		1												
Glencoe	1,788	1,788	2															1
Granite Falls	1,454	1,454	*															
Hastings	3,811	3,983	1	1														
Hutchinson	2,495	2,368	2															
International Falls		1,487	2												1			
Jordan	1,270	1,151	1															
Lake City	3,142	3,142	3													1		
Le Sueur	1,937	1,755	1			1												
Little Falls	5,774	6,078	5	1												1		1
Luverne	2,223	2,540	3															1
Madison	1,336	1,811	0															
Mankato	10,559	10,365	16	3		2										3		1
Marshall	2,088	2,152	3													1		1
Melrose	2,591	2,591	0															
Minneapolis	202,718	301,408	297	41	13	20	5	2	1		4			5	7	16	4	16
Montevideo	2,146	3,056	6	1	2													1
Montgomery	979	1,267	1															
Moorhead	3,730	4,840	6	1		1								1				
Morris	1,934	1,685	0															
New Prague	1,228	1,551	1													1		
New Ulm	5,403	5,648	7	1														1
Northfield	3,210	3,215	5	1												1		
Ortonville	1,247	1,774	1															
Owatonna	5,561	5,658	8				1									1		1
Pipestone	2,536	2,475	3								1							
Red Lake Falls	1,666	1,666	0															
Red Wing	7,525	9,048	8													2		
Redwood Falls	1,661	1,666	2													1		
Renville	1,075	1,182	0															
Rochester	6,843	7,844	31	3		1		2								4		1
Rushford	1,100	1,011	2															1
St. Charles	1,304	1,159	3															
St. Cloud	8,663	10,600	9		1	1										2		1
St. James	2,102	2,102	2			1												
St. Paul	163,632	214,744	221	22	4	17	2				2			2	5	15		5
St. Peter	4,302	4,176	5															
Sauk Centre	2,154	2,154	0															
Shakopee	2,046	2,302	1											1				
Sleepy Eye	2,046	2,247	3				1											
South St. Paul	2,322	4,510	7												1			3
Staples	1,504	2,558	2	1														
Stillwater	12,318	10,198	10	1			1									1		
Thief River Falls	1,819	3,174	4	1	1											1		
Tower	1,111	1,111	2	1		1												
Tracy	1,911	1,826	2			1												
Two Harbors	3,278	4,990	4	1														
Virginia	2,962	10,473	14			2									2	1		1
Wabasha	2,622	2,622	8		1											2		1
Warren	1,276	1,613	0															
Waseca	3,103	3,054	1	1														
Waterville	1,260	1,273	0															
West St. Paul	1,830	2,660	1															
Willmar	3,409	4,135	3													1		1
Winona	19,714	18,583	20	4										1		2		1
Winthrop	813	1,043	0															
Worthington	2,386	2,385	2													1		1

REPORTED FROM 55 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	3															
Aitkin	1,719	1,638	1															
Akeley			0															
Appleton	1,184	1,221	3															1
Belle Plaine	1,121	1,204	1	1														
Biwabik		1,690	2			1												
Bovey		1,377	1															
Browns Valley	721	1,058	1															
Buffalo	1,040	1,227	1													1		
Caledonia	1,175	1,372	3															
Cass Lake	546	2,011	3															
Chisholm		7,684	7	1		1							1		1			1
Coleraine		1,613	0															
Dawson	962	1,318	2								1							
Delano	967	1,031	1	1														
Farmington	733	1,024	3															
Fosston	864	1,055	1			1												
Frazee	1,000	1,645	1			1												
Glenwood	1,116	2,161	2															
Grand Rapids	1,428	2,239	*															
Hibbing	2,481	8,832	9			1					4			2				
Jackson	1,756	1,907	4															2
Janesville	1,254	1,173	1													1		
Kenyon	1,202	1,237	0															
Lake Crystal	1,215	1,038	2															
Litchfield	2,280	2,333	1		1													
Long Prairie	1,385	1,250	3	1												1		
Madelia	1,272	1,273	1												1			
Milaca	1,204	1,102	1															
Mountain Lake	959	1,081	1															
Nashwauk		2,080	3	1														
North Mankato	939	1,279	0															
North St. Paul	1,110	1,404	1													1		
Osakis	917	1,013	0															
Park Rapids	1,313	1,850	1															
Pelican Rapids	1,033	1,019	1															
Perham	1,182	1,376	0															
Pine City	993	1,258	0															
Plainview	1,038	1,175	1															
Preston	1,278	1,193	0															
Princeton	1,319	1,555	2															
St. Louis Park	1,325	1,743	0															
Sandstone	1,189	1,818	0															
Sauk Rapids	1,391	1,745	1			1												
South Stillwater	1,422	1,343	0															
Springfield	1,511	1,482	1	1														
Spring Valley	1,770	1,817	3															
Wadena	1,520	1,820	1															
Wells	2,017	1,755	3	1											1	1		
West Minneapolis	2,250	3,022	2															
Wheaton	1,132	1,300	0															
White Bear Lake	1,288	1,505	1															
Windom	1,944	1,749	1			1												
Winnebago City	1,816	2,555	0															
Zumbrota	1,119	1,138	0															
STATE INSTITUTIONS																		
Anoka, Asylum			2															
Faribault, School for Blind			0															
Faribault, School for Deaf			0															
Faribault, School for Feeble Minded			9	4		3												
Fergus Falls, Hospital for Insane			13	5														
Hastings, Asylum			0															
Minneapolis, Soldiers' Home			7													3		
Owatonna, School for Dependents			1															1
Red Wing, State Training School			0															
Rochester, Hospital for Insane			9	1												1		
Sauk Centre, Home School for Girls			0															
St. Peter, Hospital for Insane			15	4	1	2												
St. Cloud, State Reformatory			0															
Stillwater, State Prison			0															
OTHER PARTS OF STATE			683	67	14	44	4	5	0	0	18	1	0	3	23	47	1	42
Total for state			1769	199	43	120	15	9	1	0	34	1	1	19	49	123	6	99

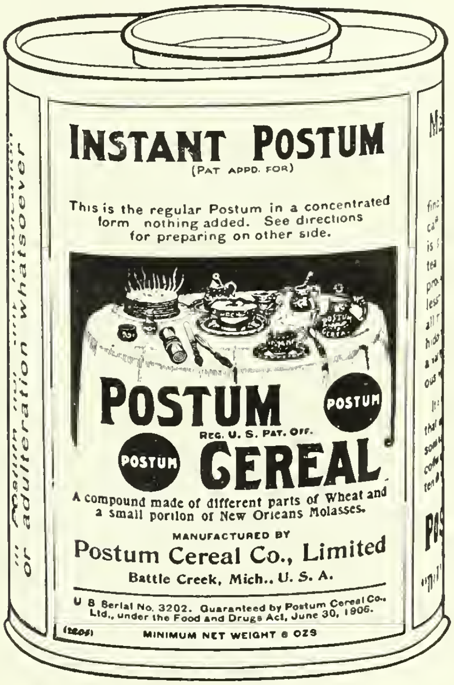
*No report received. Registrar not doing his duty.

130 stillbirths not included in above totals.

An Antidote for the Coffee Habit

INSTANT POSTUM

Among its qualities for serious consideration by the medical fraternity are—


INSTANT POSTUM
(PAT APPD. FOR)
This is the regular Postum in a concentrated form nothing added. See directions for preparing on other side.
POSTUM
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CEREAL
POSTUM
POSTUM
A compound made of different parts of Wheat and a small portion of New Orleans Molasses.
MANUFACTURED BY
Postum Cereal Co., Limited
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U S Serial No. 3202. Guaranteed by Postum Cereal Co., Ltd., under the Food and Drugs Act, June 30, 1906.
MINIMUM NET WEIGHT 8 OZS
or adulteration whatsoever

Strict Purity. Unlike the usual table beverages, coffee, tea and cocoa, Instant Postum is pure and free from caffeine and tannin. An item of vast importance in the treatment of nervous diseases.

Ease of Preparation. In its new form the beverage is made **instantly** by stirring a spoonful of the powder direct from tin into a cup of boiling water and adding cream and sugar to taste.

Palatability. While possessing a rich Java-like flavour, Instant Postum contains **no** coffee or chicory.

Physicians are familiar with the effects of caffeine, although the complex, indirect attacks are so hidden at times that they are difficult to trace back to cause. Safe procedure will interdict coffee. Then to secure obedience is the question. It is comparatively easy when the new Instant Postum is suggested.

A Regulation Size, 30c tin, of this New Product will be sent to any Registered Physician in the United States or Canada Free upon request.

Criticism and report of clinical experience are invited.

Postum Cereal Co., Ltd., Battle Creek, Mich., U. S. A.

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THE FARMERS AND MECHANICS SAVINGS BANK

Increases Its Rate of Interest from 3½% to 4%

It will be of interest to the people of Minneapolis, over 60,000 of whom are depositors in The Farmers and Mechanics Savings Bank, to know that the trustees of the bank purpose to increase the rate of dividends or interest from 3½% to 4%. This increase will take effect January 1, 1913, on all money on deposit during the quarter beginning October 1st, next. The announcement is made thus early so that the depositors can have sufficient time to determine whether they wish to take advantage of the intended increase.

Mr. N. F. Hawley, treasurer of the bank, in talking of the matter today, said: "The trustees are of the opinion that the surplus of the bank has accumulated to such an extent that they are justified in distributing some of the growing profits of the bank by means of increasing the rate of dividends or interest. In fact, it might be an injustice to the present depositors not to give them a larger proportion of the profits which their money is earning.

"It is generally well understood that the assets and profits of this bank belong to the depositors, the bank being a mutual savings bank without stock or stockholders. Consequently, when a large surplus is earned and the net profits of the bank warrant it, the depositors are entitled to an increase of the dividends or interest.

"It is the intention of the trustees to pay only such rate of interest as the safest and most conservative banking methods warrant, and to do so during such time as the profits will justify. They believe, however, that the rate of four per cent can with entire safety be paid and still add to the surplus of the bank."

THE SANDSTONE SPRING WATER

The Sandstone Spring Water Company of Minneapolis furnishes probably the softest, purest, and most delicious table water to be found in the state, and it is handled with a degree of care that cannot but be a surprise to everyone not familiar with the modern process of handling water.

This water flows from the deep sandstone into a porcelain-lined car-tank, and not a particle of dirt or foreign matter reaches it at any stage of its handling. It touches only glass and porcelain, and is delivered in sealed bottles.

HILL CREST SURGICAL HOSPITAL

When the above hospital was opened in Minneapolis by four of our leading specialists,—Dr. J. Warren Little and Dr. Archa E. Wilcox, in general surgery; Dr. C. G. Weston, in gynecology and abdominal surgery; and Dr. Frank C. Todd, in eye, ear, nose, and throat work,—medical men wondered if a hospital built along almost ideal lines could be maintained. Now, we mean by an ideal hospital several things, but especially a modern building of moderate size, faultlessly equipped as a surgical hospital, yet retaining all the features of a home hospital. Such, in fact, is the Hill Crest Hospital, and some of our leading medical men who have themselves been patients in it say it is indeed ideal. Moreover, it has proved a financial success, and it has done so, not through extravagant or even high prices, but because its attractions for patients have kept it filled almost to capacity at all times, and thus avoided the large waste of idle capacity.

Its success is a credit to its founders and conductors, especially as it is a model for other hospitals and an encouragement to men who would build hospitals wholly free from the defects that have made the very name of hospital obnoxious to patients, instead of attractive because of the comforts and advantages that should be offered by every hospital.

SEASONABLE USES FOR GLYCO-THYMOLINE

The congestion and inflammation of the skin caused by exposure to the rays of the sun can be (with the exception of a slight redness) prevented by the use of 25 per cent to 50 per cent solution of Glyco-Thymoline applied freely by means of a small sponge or soft linen cloth and allowed to dry in. Used after exposure it increases the capillary circulation and prevents entirely the blistering and peeling. Applications of a 25 per cent to 50 per cent solution by means of a mask of cotton or linen kept constantly wet with above for two or three hours will restore the skin to a normal condition. Irritation of the skin due to chafing, prickly heat, uric acid diathesis, excessive perspiration, etc., are at once relieved by Glyco-Thymoline, full strength, lightly applied with the hand. It also deodorizes.

PLASMODIAL ANEMIA

In spite of the modern theory of the etiology of malaria and malarial affections (mosquito-borne infection) this plasmodial disease continues to be rife in certain sections of the country and bids fair to be, like "the poor," "always with us."

Every physician of experience appreciates the principles which should guide him in the treatment of the various acute manifestations of paludal poisoning, i. e., the destruction of the plasmodial hosts which have invaded the blood and which, if not eliminated, consume and destroy the red cells, the vital element of the circulating fluid.

When this purpose has once been accomplished, the patient is but partly cured; the damage done to the red corpuscles must be repaired and the vitality of the blood restored, if re-infection is to be avoided. If there is any one condition in which direct hematinic or blood-building therapy is positively indicated, it is in Post-Malarial Anemia. As soon as the febrile period has passed, iron, in some form, should be given in full dosage. Pepto-Mangan (Gude) constitutes the ideal method of administering this essential blood-building agent in this as well as in any anemic condition. Both the iron and manganese in Pepto-Mangan are in organic combination with peptones and are therefore easily and promptly absorbed and assimilated without causing digestive derangement or producing constipation.

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SOME THINGS PRACTICAL IN SERODIAGNOSIS*

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ST. PAUL

According to Strümpell we have in the spinal fluid an index of the condition of the central nervous system, not as reliable perhaps but comparable to that which the urine bears to the state of the kidneys. With Oppenheim's view, that lumbar puncture is too serious a proceeding to be used as an ordinary means of diagnosis, I have but little sympathy. While it is true that Gumprecht[1] some four years ago reported fifteen deaths following it, it must be borne in mind that in these cases there was marked intracranial tension, such as occurs in brain tumor, especially of the cerebellar type. There was also probably too much fluid withdrawn. Lusk[2] found but one reference in literature where simply lumbar puncture was followed by paralysis. Special emphasis should be laid on the danger attending lumbar puncture in cerebellar growths. Aside from these counter-indications, it is a harmless procedure, and, with the exception of headache, is rarely attended by any unpleasant symptoms. The disagreeable effects are especially noticeable in functional, non-syphilitic and metasyphilitic cases, in alcoholics and arteriosclerotics with high blood-pressure. (Henderson and Casamajor.)

According to Stewart, a horizontal line drawn across the back at a level of the highest margin of the iliac crests intersects the vertebral column at the tip of the fourth lumbar spine. The needle should be inserted about one-half inch below, and the same distance to the right of, this point, between the laminæ of the fourth and fifth lumbar vertebræ, but some prefer the interspace between the laminæ of the third and fourth vertebræ. Should the patient feel a sharp pain shooting down his right leg, this indicates that the needle has touched one of the roots of the cauda equina, but it has no significance. The patient should assume the sitting position, slightly inclined forward. Not more than 4 or 6 c. c. of spinal fluid should be withdrawn, which should be taken in a sterilized glass tube. For cytologic purposes this should be centrifuged twenty minutes, the contents poured off, and a drop taken with a pipette from the bottom of the tube, placed on a slide and stained with methylin-blue or hemotoxylineosin. (Oppenheim.) Alzheimer's method is to take equal parts of the spinal fluid and 96 per cent alcohol, which causes a precipitate of albumin; this is centrifuged for twenty minutes. A solid precipitate is formed which contains the lymphocytes. This is run through alcohol and ether, imbedded in celloidin, and sectioned and stained like any pathological section. Usually, the spinal fluid contains no lymphocytes, although three or four may be found in the microscopic field. Lymphocytosis is a relative term. Plaut regards from 6 to 9 cells as the borderland, while ten cells or upwards in 1 c. c. is pathologic. On the other hand certain French authorities place this at 3 cells per c. c.

The announcement by Dr. Ford Robertson of his belief that paresis is due to the bacillus paralyticans first incited me to the cytological investigation of the spinal fluid. Since 1908 it has been my custom to make a lumbar puncture in every case of paresis or tabes that would allow my doing so. While the results were suggestive and most interesting, they were still very unsatisfactory. Lymphocytosis might mean constitutional syphilis, cerebral lues, paresis, or tabes, or in very rare instances, it might occur in organic disease of a non-syphilitic nature. Only since the remarkable work of Wassermann and his co-investigators have we been able to combine the cytologic and biologic methods in our investigations and thus arrive at certain eminently practical results. Today every physician, if he is in any way adequately equipped for the practice of medicine, must have at least a rudimentary knowledge of serodiagnosis. The nature of the Wassermann reaction is still very indefinite and "the appearance of a whole series of modifications and simplifications of the method" has added to the confusion. Plaut employs the original Wassermann method and regards it as the only reliable one. He states that he has always returned to it after he "has tried in vain to get satisfactory results with substitutes." Kraeplin places great reliance on his findings. No value, however, can be placed on the serological findings, unless the investigations are in the hands of a laboratory man trained in the peculiar technic of this reaction. This, I am told, is the verdict of those in charge of the clinic of skin and venereal diseases at the Vienna General Hospital.

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*Read before the North Dakota State Medical Society May 12, 1912.

The term *serodiagnosis* is used throughout this paper in a most comprehensive sense. It includes the globulin reaction, the reaction of deviation of complement in the blood-serum and spinal fluid, and a counting of the lymphocytes; *i. e.*, a cytologic examination.

A majority of syphilitics give a positive Wassermann, the normal person only exceptionally; while the control material is usually negative.[3] Other authorities[4] claim a positive Wassermann in from 80 per cent to 90 per cent of syphilitics. The Wassermann reaction, unfortunately, does not possess an absolute specificity. Like the Gruber-Widal agglutination in typhoid and the biologic reaction in tuberculosis, it is not pathognomonic. A positive Wassermann has been reported in typhoid, malaria, psoriasis vulgaris, tuberculosis, pneumonia, diabetes, scarlet fever, leprosy, brain tumor, etc.; but notwithstanding that we are unable at present to state the limitations of these exceptions, *its clinical utility is of the greatest practical importance.* A positive serum indicates only that the patient has syphilis. It may be simply constitutional, or there may be involvement of the nervous system; but there can be no conclusions drawn as to the *localization* of the syphilitic process. A syphilitic may develop a psychosis. The presence of the serum reaction does not aid us in deciding whether the psychosis is due to syphilitic changes or is simply a mental disease in a luetic person. A cytologic and biologic examination, taken in connection with the clinical syndrome, enables us to form a correct opinion in a very large percentage of the cases. Sachs is right when he says that a diagnosis should never be made by a serological examination alone; it should never be employed to the exclusion of clinical and bedside observation, but, rather, it should be given weight and regarded as corroborative of these. Serology* is now a factor in the investigation of idiocy, the cerebral palsies of childhood, juvenile paresis, and family types of disease, such as spastic familial affections, of spinal or cerebral character, the hereditary ataxias, the muscular atrophies, cases of mild weakmindedness developing on an hereditary syphilitic base, and neurasthenia in children, which shows itself in excitability, moodiness, capricious appetite, insomnia, inability to learn or to concentrate the mind, etc. (Plaut.) Mott states that the parasyphilitic affections can be definitely differentiated from neurasthenic states by an examination of the cerebrospinal fluid.

There may be said to be a regular type of reaction in cerebral lues, namely, a negative spinal fluid and a positive serum, usually with a marked lymphocytosis. This corresponds with the florid stage of syphilis without involvement of the nervous system. The globulin reaction is positive in a majority of the cases. A mildly positive reaction, according to Richter, indicates cerebral syphilis rather than paresis. Nonne reports 10 cases of cerebral lues in which the spinal fluid gave a negative and the serum a positive reaction; Stertz, 8 cases in which the spinal fluid was negative; Frankel-Heiden, 7 cases in which the fluid was negative in 5 and positive in 2; and from 70 to 80 per cent of Nonne's cases showed lymphocytosis.[5] Eighty-five per cent of Plaut's cases of cerebral syphilis showed a marked cellular increase, while in constitutional syphilis this increase was only 48 per cent. This same author states that the Wassermann reaction may be absent in both the serum and spinal fluid, while lymphocytosis may be present; very rarely the spinal fluid in cerebral syphilis reacts positively and then usually in a mild degree. Holzman, however, states that in cerebrospinal lues the blood-serum is positive in from 80 to 90 per cent of the cases; the globulin reaction (Phase I) positive, rarely negative, and then only in exceptional instances; and the same is true of lymphocytosis. The spinal fluid is positive (the original method) in about 10 per cent, while if larger quantities of fluid are used it is mostly positive.

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*Dr. A. C. Rogers, Superintendent of the Minnesota State School for Feeble-minded, at Faribault, has in process such a series of investigations, the results of which we shall await with interest.

The following case, A., I saw through the courtesy of Dr. Franklin Wright, of Minneapolis:

> A., American, aged 27 years; no nervous diathesis; contracted syphilis five years ago, took mercurial treatment for about ten months, and three years later was given mercurial injections. The latter part of September, 1911, he was seriously injured in an automobile accident and was unconscious for a time, but after forty-eight hours he recognized those around him. For a few moments he would talk rationally; then would become confused and give expression to all sorts of delusional ideas; was disoriented. A week preceding the accident he had been through a very trying mental strain. Two weeks after the injury he developed an acute delusional and hallucinatory condition, which was especially noticeable at night. He would try to get out of bed, wanting to go somewhere, and at times he was so violent that it required three or four nurses to control him. The next day he would remember all that had occurred. When I saw him he was still very much disturbed at night, although quite normal during the day. His mental reflexes were sluggish, and he slurred his words. He would be much confused after waking from sleep. Both deep and superficial reflexes were normal. The pupils reacted to light and accommodation, the right pupil being larger than the left. Dynamometer: right hand 37°; left, 20°. Sensation, normal; no headache; no vertigo. He had been in excellent health until the time of his injury. Wassermann reaction; serum, negative; spinal fluid, positive; no lymphocytosis.

Unfortunately, in this case the globulin test was not made. Some would account for the negative serum by the fact that the patient had been taking iodide of potash; Matson,[6] however, says that iodide of potash does not affect the Wassermann reaction. Plaut reports 18 cases of cerebral syphilis in which both the serum and spinal fluid were examined, in 14 of which the sera were positive and spinal fluid negative; in 3, both were positive, and in 1 both were negative. He asserts that he has never seen a case of cerebral lues where the serum was negative and the fluid positive. On the other hand, Nonne[7] says that in rare cases of syphilis of the nervous system the blood can react negatively and the spinal fluid positively. Schmitt has observed several cases in which the reactions were the same as in our patient, namely, a negative serum and a positive spinal fluid. In some exceptional cases of cerebral syphilis there is a negative reaction at first which becomes positive after treatment has been well established. The second time I saw A., which was a week later, he was very much improved, and he has made a good recovery. This was undoubtedly a case of cerebral syphilis, as evidenced by certain facts, viz.:

First, the time of its occurrence, which was five years after infection. According to Henderson practically all cases of brain syphilis develop within ten years after contraction; a majority occur within three years (Oppenheim, Nonne, Mott). Some authorities have reported it as showing itself within a month after infection, or even before the initial lesion had healed.

There are, however, exceptions to this relatively early development of cerebral lues since it has been observed as late as forty years after the exposure.

Second, the absence of the Argyll-Robertson pupil. Siemerling found the Argyll-Robertson pupil present in only 1 per cent of his 1,639 cases of nervous syphilis. Out of 69 persons suffering from cerebrospinal syphilis, Clark observed this phenomenon only 5 times. Seventy per cent of all cases of paresis and tabes have this symptom.[8]

Third, according to Plaut the serum in paresis *always reacts positively,* hence its negative reaction in A.'s case absolutely excluded paresis. Mott epigramatically states that "a negative serum puts out of court general paralysis." The diagnosis of cerebral lues is made doubly sure if, in addition to the serological findings, the lymphocytosis and positive globulin reaction we keep in mind its clinical syndrome, viz.: the rapid onset and course of symptoms with their characteristic variations; the variability of the knee-jerks,—present one day, absent the next; the optic neuritis, neuroretinitis or unilateral central scotoma; ankle clonus; the Babinski; monoplegia or hemiplegia, and cranial nerve palsies; the nocturnal headache,—stabbing, boring, infernal; the vertigo; insomnia; grandiose ideas; a dull confused mental state; disorientation; delirium; hallucinations; etc.

A clear conception of parasyphilis, since it occurs in from five to ten per cent of syphilitics (Fisher), makes for accuracy and clarifies an otherwise hopelessly obscure subject. The toxins of the *spirocheta pallida* possess a selective action for certain neural systems, as the afferent sensory neurons in tabes; a more diffuse involvement, as in paresis; and a combination of both these morbid activities in taboparesis. Parasyphilis, then, is a primary degeneration of the neurons with secondary changes in the membranes, vascular and neurogliar structures (Mott).[9] Paresis and tabes are incurable, and their so-called curable early stage,—the preparetic and the pretabetic,—are syphilitic and not parasyphilitic conditions; and with our present knowledge of serodiagnosis this differentiation can be definitely made. When patients are markedly responsive to treatment it is due to an active syphilis being associated with neuronic decay. Mott says that he has never seen the symptoms of tabes or paresis when once occurring ever disappear under treatment. These chemical poisons (the toxins) devitalize the neuron, rob it of its initial vitality, seriously lessen its functioning capacity, and cripple it to such an extent that it is utterly incapable of sustaining its normal activity. All unusual demands, such as arise in exhausting diseases, over-exertion, mental stress and strain, cold, trauma, etc., are most disastrous to neuronic integrity in a nervous system already possessing a predilection to degeneration.

Plaut has reported 149 cases of paresis, in 5 of which the spinal fluid reacted negatively. Further examination showed that two cases had been wrongly diagnosed, one doubtful, and the remaining two cases were shown by subsequent autopsy to have been paresis. Thus it is seen that very few cases of paresis are lacking in the positive reaction of the spinal fluid, and that these are open to question on the clinical side. A positively reacting fluid, according to this writer, indicates tabes as much as paresis. There can be no differentiation on this point. If we accept the doctrine of Fournier, that tabes, taboparalysis, and paresis are one and the same disease, differing only in their initial localization, this can be readily understood. Ferrier, Mobius, and Mott take a similar view. Nonne found that the serum and spinal fluid reacted positively in 90 per cent of his cases of paresis. In incipient paresis the spinal fluid can give a positive Wassermann without, or previous to, any cellular increase. Usually, however, in this disease there is a perfect agreement between the biologic and the cytologic findings. Mott states that he has observed lymphocytosis in practically every case of paresis, even in the initial stages. Nonne reports it in from 90 to 97 per cent of his cases; according to Szecsi there is cellular increase in 100 per cent of the cases, and in the majority of them this is very marked. Lymphocytosis is an early and constant sign, and appears when other symptoms are scarcely recognizable. On the contrary, Achard[10] has had 3 cases, one confirmed by autopsy, without lymphocytosis; and Plaut reports 8 in which there was no lymphocytosis, and the spinal fluid was biologically positive. A positively reacting spinal fluid is of great differential value in insidious cases of paresis, of which the two following are excellent examples:

Miss E., Irish, aged 37, stenographer; mother died in sixtieth year of pneumonia, father of appendicitis. She contracted lues at 22; at 23 had a running sore on the right hand and arm, which lasted three months and was cured by iodide. When 35 she had a gumma on each foot, and they were also cured by iodide. In October, 1910, she contracted a severe cold accompanied by tinnitus. Shortly afterward there developed a marked sensitiveness of the scalp, associated with extreme restlessness, and she has been very nervous ever since; suffered from insomnia and pain over the head and eyes; she complained of it being difficult to carry on a conversation. Greatly depressed; memory good; worried constantly as to the outcome of the luetic infection. The neurological and physical examinations were negative. Blood-presure, 128 mm. Hg.; hemoglobin, 85%. The case at first appeared to be one of syphilophobia, but after a positive Wassermann was obtained in both the serum and the spinal fluid I appreciated the gravity of her trouble. At present she is somewhat improved; the depression is much better, but she is unable to resume her work.

G., male, American, aged 48, married; no nervous or psychopathic heredity; no previous mental breakdown. Became infected at 28. He was an excessive smoker and drinker. His wife had one miscarriage; one child died of hydrocephalus; one living. Two months before consulting me he began to suffer from insomnia, with periods of excitement and confusion during the night; rational in daytime. He thought dead bodies were around him; heard people moving coffins in the basement; etc. Speech thick; very irritable and unmanageable; confused and disoriented. There was no elation or grandiose ideas. The neurological and physical examinations were negative. Hemoglobin, eighty-four per cent; red-blood count, 4,864,000; white-blood count, 8,975; blood-pressure, 146 mm. of Hg.; urine, normal; a positive Wassermann of both serum and cerebrospinal fluid; mild lymphocytosis; Nonne-Apelt test, positive. He grew worse, became bedridden and apparently was rapidly deteriorating; he was given mercurial inunctions with iodide and increasing doses of tuberculin after the method of von Wagner of the Vienna Psychiatrical Clinic. After eight weeks, the treatment was stopped and the patient was removed to a State hospital. Shortly after this he began to improve and is now presumably well. The asylum physician said it was a maniac-depressive case and not paresis. Some months after leaving the asylum I received a letter from him. It was clear and free from any evidence of mental impairment, but the writing was very suggestive of paresis.

The absence in both these cases of the pupil phenomena, namely, inequality, irregularity, or Argyll-Robertson pupil, should be emphasized, since writers differ greatly as to their significance. Mott states that these may be absent in the earliest stages of paresis or at least very slightly marked, while Fisher[11] says he would hesitate to make a diagnosis of paresis or tabes if the Argyll-Robertson pupil were wanting. Both E. and G. are probably in the early stage of paresis, while the latter is experiencing a remission, which will inevitably be followed by relapse and the usual tragic end. Both of these patients may be said to have *serologic paresis.* Since the characteristic clinical syndrome is lacking time alone will determine the correctness of the diagnosis.

According to Scholberg and Goodall[12] a diagnosis of paresis should not be based on a single examination, whether positive or negative, with either the serum or cerebrospinal fluid; there should always be two tests with an interval of two weeks, and a spinal fluid must furnish a positive reaction before a diagnosis can be made. A repeatedly positive Wassermann in the spinal fluid is, they believe, as sure an index of paresis as the Argyll-Robertson pupil.

The next case is a typical paresis.

F., male, aged 40, American, widower, traveling salesman; denies venereal disease; has drank and smoked heavily for the past five years until within a few months. Present illness began three months ago with depression and restlessness. There soon appeared delusions of grandeur; says he has sold $10,000 worth of cigars in a day; etc. He is absent-minded, untidy, and filthy, especially in the early morning. Rational at times. Pupils react sluggishly to light. No sensory disturbances. Deep and superficial reflexes, normal. Hemoglobin fifty per cent; rich-blood count, 5,200,000; white-blood count, 9,400; urine, normal; positive Wassermann of serum and spinal fluid; lymphocytosis; Noguchi, positive; Nonne-Apelt, mildly so.

The latter test is positive in about 96 per cent of the cases. The Nonne-Apelt and Noguchi tests, when positive, indicate simply an excess of globulin. In the functional neuroses and healthy people the globulin reaction does not take place. In other forms of nervous disease it occurs not infrequently, while in nervous syphilis and parasyphilis it is very rarely absent. Nonne's test (Phase I) consists in taking equal parts of spinal fluid and a neutral solution of ammonium sulphate and mixing them. If the fluid becomes milky or cloudy within three minutes the test is positive; if this opalescence occurs after three minutes, it has no significance (Nonne's Phase II). The Noguchi butyric-acid test causes a definite flocculent precipitate, either immediately or within two hours, if an excess of globulin is present in the spinal fluid. Nonne regards the globulin reaction (Phase I) and pleocytosis as equivalent reactions. These are very constant in cerebrospinal syphilis, paresis, and tabes, and very exceptional in multiple sclerosis, epilepsy, and cerebral tumor; but they are entirely wanting in neurasthenia without syphilis and in pseudo-alcoholic tabes. A positive globulin reaction with lymphocytosis is highly suggestive of luetic infection. Strouse[13] asserts that the Noguchi test is always positive in tuberculous meningitis. A cytologic investigation of the spinal fluid and a noting of the globulin reaction are valuable aids in arriving at an opinion, but they do not furnish any evidence of a distinctly differential diagnostic character. When there occurs, as in F., pleocytosis, increase of globulin and reaction of deviation of complement in the blood-serum and spinal fluid, the case is, according to Nonne, almost invariably one of paresis. The usual belief that paresis runs its course in from three to five years is no longer accepted. Plaut has observed a case of stationary paresis of twenty-three years duration, and Alzheimer made an autopsy on a patient who had suffered from paresis for thirty years. The spinal fluid in tabes, as previously stated, reacts similarly to that in paresis, namely, contains the same reacting substances, although not so constantly present. Nonne found 90 per cent of positive findings in the blood and 50 per cent in the spinal fluid. Kaliski[14] reports the blood-serum positive in from 60 per cent to 70 per cent and the spinal fluid in from 10 per cent to 20 per cent of the cases. Holzmann tells us that the blood-serum is positive in 70 per cent, the globulin reaction (Phase I) in 95 per cent, lymphocytosis in 90 per cent, and spinal fluid (original method) in 5 to 10 per cent, and in increased quantities in practically 100 per cent of the cases.

Plaut's observations confirm those of Schutze, that a positive reaction in tabes is usually yielded by both serum and spinal fluid. He also states that cases of tabes do occur which present a negative behavior of the serum; also that in atypical cases the spinal fluid may be free from reacting substances. Some five years ago I saw a patient who was suffering from grave, periodic gastro-intestinal disturbance. It would come on without warning. There would be constant vomiting and retching with nausea and pain. The patient would become so exhausted that great concern was felt as to his recovery. He would then begin to improve and in a short time would regain his normal health. Examinations of the stomach and of the nervous system were entirely negative; a cytologic study of the spinal fluid showed a marked lymphocytosis. Evidently the patient was suffering from gastric crises, which were the early and only symptom of tabes. Plaut reports a case of incipient tabes in which the spinal fluid was positive; there was no increase of cellular elements, no inequality of pupils, the left one being immobile; knee-jerks active; no other symptoms. A year later a classical tabes had developed.

The tabetic syndrome is so familiar that I shall report only one case and that of a patient in the early stage.

C., male, Swede, a grain-dealer, aged 38 years; married; no children; no nervous heredity; no alcoholism. He became luetic in 1900. Present illness began a year ago, after he had fallen out of a buggy. He first noticed a tightness across the chest, like a band. In October, 1911, lightning pains appeared in both legs, always occurring between 2 and 3 o'clock in the morning and lasting a few hours. About this time also he observed a slight difficulty in starting the flow of urine. Pupils reacted to light and accommodation. Right pupil larger than the left. Slight Romberg; loss of knee-jerk and Achilles. Deep and superficial reflexes, normal; sensation, normal. Lumbar puncture showed slight increase in pressure. Noguchi, positive; Nonne-Apelt, doubtful; marked lymphocytosis; Wassermann, positive, both in the blood and spinal fluid.

From the standpoint of biologic behavior tabes, like paresis, shows a striking contrast to syphilis, either constitutional or nervous, the spinal fluid in the latter giving a negative reaction.

The significance of lymphocytosis is a matter of much interest. Strümpell[15] states that it is seldom absent, even in initial and rudimentary cases of tabes; Oppenheim[16], that a more or less marked lymphocytosis is almost a constant sign of the disease even at the very beginning; Nonne, that it occurs in 96 per cent of the cases; and Mott, that it always occurs in tabes and that this fact is of great importance in the differential diagnosis. DeMassery, on the contrary, says, that he has known of certain rare cases of tabes without lymphocytosis, at least in certain periods of their course, and refers to a case of Achard and Foix having many tabetic symptoms, including arthropathy, in which two cytologic examinations revealed no lymphocytosis. There was no doubt in their opinion that this was a genuine case of tabes. In 10 of Plaut's cases, 6 showed a cellular increase. Babinski has called attention to the association in the majority of cases of the Argyll-Robertson pupil and lymphocytosis. It would seem therefore that lymphocytosis is present as a rule, but not invariably. It does not sustain any definite relation to the Wassermann reaction.

In December last, before the Society of Neurology of Paris, Dr. DeMassery referred to a case of tabes of Achard's in which the Argyll-Robertson pupil was absent, and he added that other similar cases have been observed. He does not hesitate to say that this symptom is neither pathognomonic nor constant. It must not be overlooked that lymphocytosis occurs in other diseases aside from lues and luetic affections; namely, in hemorrhagic pachymeningitis, epilepsy, tubercular meningitis, herpes zoster, intracranial tumor, chronic alcoholism, etc., but is only exceptionally seen in the healthy, in the neuroses, and in the non-inflammatory nervous diseases. Lymphocytosis means simply a chronic inflammatory condition of the central nervous system, which may arise from a variety of causes.

The four reactions occur in tabes as in paresis, but are not so constant. It is rather an interesting fact that in all of my cases of tabes the spinal fluid has reacted positively; and in only one instance has there been any deviation from the reaction as seen in paresis, and in this patient the serum gave a negative Wassermann. Clinically, however, this was a case of undoubted tabes.

One of the many perplexing problems which confront us is *epilepsia tarda,* in the solution of which serodiagnosis is invaluable. An example of this is the following case:

H., a business man, past 45 years of age, consulted me for some peculiar attacks that had caused himself and his family much apprehension. Three times he had suffered from what was clearly an epileptic seizure. He was found unconscious, and his symptoms were in every way characteristic. He voided his urine and feces during the attacks. He had been a free-liver and was in his younger days indiscriminate in his amours. I am always suspicious of an adult epilepsy, since there is an organic base in a majority of the cases. It may be a brain tumor of which I have seen several instances, resembling in every way idiopathic epilepsy; it may be lues or arteriosclerosis. Fournier[18] thinks all cases of epilepsy in which the first symptoms appear after the twenty-fifth year are parasyphilitic. Nonne believes in this form of epilepsy, but his opinion is not as radical. Rumpf says that an epilepsy which develops after the thirtieth year and leads in time to paralysis is only very rarely not syphilitic. Alzheimer has shown that syphilitic endarteritis of the small vessels may cause epileptiform attacks and psychical disturbances which resemble the epileptic equivalent. Mott describes an exactly similar condition, which he attributes to the same cause, and emphasizes the necessity of recognizing this manifestation of syphilis in its earliest stages. He states that the cerebrospinal fluid in these cases would give a lymphocyte reaction and possibly a Wassermann. The serum would almost certainly give this reaction and should be examined in all doubtful cases. There is no question but epilepsy may occur after the fortieth, and even as late as the sixtieth and seventieth, year in non-syphilitics, but its occurrence at this time of life, should always suggest the possibility of syphilis. H. was not satisfied with my diagnosis and prognosis and consulted two well-known Chicago physicians who told him that he did not have epilepsy, but had suffered from "fainting spells," if anyone knows what that means, and caustically criticised me for having had a Wassermann made.

Serodiagnosis is the open door of a great opportunity, not only for the diagnosis of syphilogenous nervous disease, but for the recognition of the syphilitic infection with its dire possibilities as well. It is at this time, before there has been any involvement of the nervous system or before there has been any neuronic degeneration, that treatment is most effective. Several cases will best illustrate my meaning:

A few weeks since Dr. C. L. Larson, of St. Paul, referred to me a woman, 50 years of age, who had consulted him for rapid loss of vision and whom he had found to be suffering from a neuroretinitis, suggestive of some intracranial lesion. There was great impairment of hearing in both ears, which is quite characteristic of lues. Last August she suffered from severe pain in the head and spine, which ceased after a few months. There was a suspicious rash on the arm. There were no mental symptoms, and the neurologic examination was negative. The blood-serum gave a positive Wassermann,—evidently a case of cerebral syphilis. Her husband, through whom she was infected, had never had any symptoms of the disease. She was accompanied by her daughter. Both daughter and husband should have had a Wasserman of the serum, and, if positive, should have received antiluetic treatment.

Recently a man suffering from paresis consulted me. The onset had been apparently sudden. In this case both the clinical symptoms and the serologic findings were definite, and there could be no doubt as to the accuracy of the diagnosis. The wife, who stands in great danger of developing either tabes or paresis, and the child of the patient, should both have been examined serologically, and, if the results were positive, properly treated.

Last year a young man whose father died of paresis some ten years previously, came to me for treatment for a neurasthenic condition. After several months he made a good recovery, yet I have greatly regretted that in this case I did not have a Wassermann made.

In this connection it is interesting to note that Eyman and O'Brien[19] observed a positive Wassermann in the blood serum in 60 per cent of the wives and in 84 per cent of the children of general paralytics. It is a matter of routine with me to examine every case, atypical or uncomplicated, for the four clinical reactions of Nonne, viz.: pleocytosis, increase of globulin and the Wassermann reaction in blood-serum and in spinal fluid. Kaplan's "four-phase" formula of reactions differs from this (Nonne's) only by the addition of the Fehling test. This nomenclature is unfortunate and tends to confusion. Holzmann's three characteristics[20] of a pathologic spinal fluid, namely, increased pressure, positive globulin reaction, and increased cell-content, should always be kept in mind, as well as his assertion that a spinal fluid reacts positively, with the one exception of leprosy, only in luetics.

CONCLUSION

1. The great majority of syphilitics (from 80 to 90 per cent) show a positive Wassermann. Latent syphilis gives a positive Wassermann in from 50 to 60 per cent of the cases. (Schmitt.)

2. *The uniform type of reaction* in cerebrospinal syphilis is a positive blood-serum and a

negative spinal fluid with lymphocytosis and a positive globulin reaction.

3. In paresis and tabes, almost invariably in the former, the blood-serum and spinal fluid give a positive Wassermann. There is also a marked lymphocytosis and a positive globulin reaction. *In tabes the reacting substances are not so constantly present either in the blood or spinal fluid.*

4. A positive globulin reaction and lymphocytosis are constant factors in cerebrospinal syphilis, paresis, and tabes, more especially in the last two. While their presence is most suggestive of syphilis, yet it must not be forgotten that they are very exceptionally found in non-syphilitic nervous disease.

5. In every case of cerebral syphilis, paresis, and tabes there should be a Wassermann made of the blood-serum and of the spinal fluid, in order that a luetic infection be not overlooked; *and no examination of the spinal fluid can be considered final or satisfactory without having made a globulin test, an enumeration of the lymphocytes, and the complement-fixation reaction.*

6. The Argyll-Robertson pupil is not a constant nor a pathognomonic symptom of either paresis or tabes; it is simply an indication that the central nervous system has, as Babinski says, been "touched with syphilis." This is the *practical and essential point.* Trowbridge has recently reported 8 cases of paresis in all of which the Argyll-Robertson pupil was absent.

7. Unquestionably serodiagnosis is of great value in differentiating the various forms of syphilogenous nervous disease and also in distinguishing these latter from those of a non-syphilitic nature. To what degree of accuracy and exactness our future knowledge of serology will lead we can but faintly surmise, so vast are its possibilities; we can only say with Rossetti, "Leagues beyond these leagues there is more sea."

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THE FUNCTIONAL RESULTS IN PROSTATECTOMY*

By E. S. Judd, M. D.

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The prostate gland is a part of the sexual apparatus, and as such has a definite function to perform. This function is to secrete a substance which is an important ingredient of the spermatic fluid and which is essential to the motility and life of the spermatozoa. Beside the secreting tissue the gland is also composed of muscular tissue which contracts and expels the secretion, forcing it into the urethra.

At one time it was believed that the intrinsic muscles of the prostate acted in controlling the outflow of urine from the bladder, but this hypothesis has been practically disproved. It is a well-known fact that, after complete removal of the gland and its muscles, the urinary control remains unchanged.

The prostate gland is rich in nerve fibers, ganglion cells, and nerve-end organs, and an interesting relationship exists between it and the testicles. The gland continues to develop up to the age of puberty. If the testicles are lost in childhood the development of the prostate is stopped, or, if an adult be castrated during the active period of life, the prostatic gland atrophies.

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*Read at the 31st annual meeting of the South Dakota State Medical Association at Mitchell, May 22 and 23, 1912.

The knowledge of this fact led to the Ram-White operation, i. e., castration for hypertrophy of the gland. This, however, appears to be a mistaken procedure, since the atrophy which takes place after castration is an atrophy only of the active, functionating part of the gland. Castration has no effect whatever on the ordinary so-called hypertrophy, which is in reality a tumor-formation and not a true hypertrophy.

Inasmuch as the prostate gland has chiefly only a secretory function, its removal will not influence the sexual power, except to interfere with the existence of spermatozoa. We are often questioned by patients regarding the effect removal of the gland will have upon the sexual power, and very often an individual just beginning to notice weakness will ask for an operation with the idea that it will restore function. Since the removal of the gland will not influence the sexual power one way or the other, the patient should be told that, in this respect, he will remain as before the operation. It can readily be seen that preservation of the seminal ducts will act only in providing an escape of the contents of the seminal vesicles and will not have a direct effect upon the function.

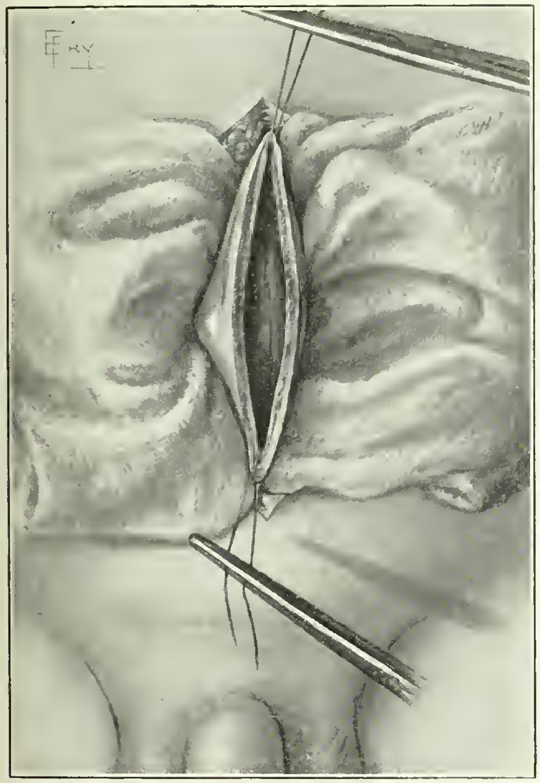

Fig. 1. Bladder lifted out of the suprapubic wound by the suture in each end of the incision. The edges of the wound are protected by pads of gauze.

The frequency of micturition which accompanies almost every case of enlargement of the prostate, is due not only to the increase in the size of the gland but is directly proportionate to the amount of existing inflammation and cystitis.

Following prostatectomy the patient is usually obliged to void urine frequently, and this condition exists so long as any granulating surface remains in the capsule from which the gland was removed. When this surface has become entirely healed, the intervals between voiding urine will gradually lengthen, and unless a chronic cystitis exists the intervals become nearly normal in the majority of cases. The degree of pain also depends largely upon the extent of the cystitis. The pain due to obstruction by the gland will be relieved at once by the removal of the gland. Occasionally, extreme, spasmodic pain exists. This is usually caused by a foreign substance in the bladder, or a tag of the gland or mucous membrane which the muscular contractions of the bladder are endeavoring to expel. If there be no pre-existing cystitis and the gland is completely removed, there will be little or no pain remaining by the time the wound in the bladder is healed.

The more important feature as regards these cases in their functional results, is their ability to control, absolutely, the outflow of urine. This one factor is almost as important as the ultimate result of the operation. (Many patients tell us they would rather not live than live and be unable to control their urine. A catheter-life is much to be preferred.)

Incontinence may exist before operation, and, with some of these patients, control will improve by removal of the gland, though oftentimes they are made worse. The condition may exist as (1) dribbling, constant or intermittent; (2) inability to control while standing or, in some cases, just the opposite, i. e., inability to control while lying down; (3) complete incontinence without knowledge that the urine is escaping. (Fig. 1.)

The mechanism of urinary control is not well established. Undoubtedly, the internal sphincter and the detrusor muscles are important factors. It is interesting, in this connection, to recall the case operated upon by Freyer, which came to autopsy some months later. It was found that the entire internal sphincter muscle had been removed, and yet this patient had just as good control as before the operation.

It has been definitely demonstrated that incontinence does not follow the suprapubic operation. (Fig. 2.) The control in these cases is as prompt and absolute as at any time, and this is true even if the entire prostatic urethra be removed with the gland. Loss of control after the perineal operation occurs in a small percentage of cases. The condition is most difficult to remedy, and this one feature is a strong argument in favor of the suprapubic operation. We have not observed a case of incontinence following several hundred suprapubic operations, while in as many perineal operations we have observed a number of cases.

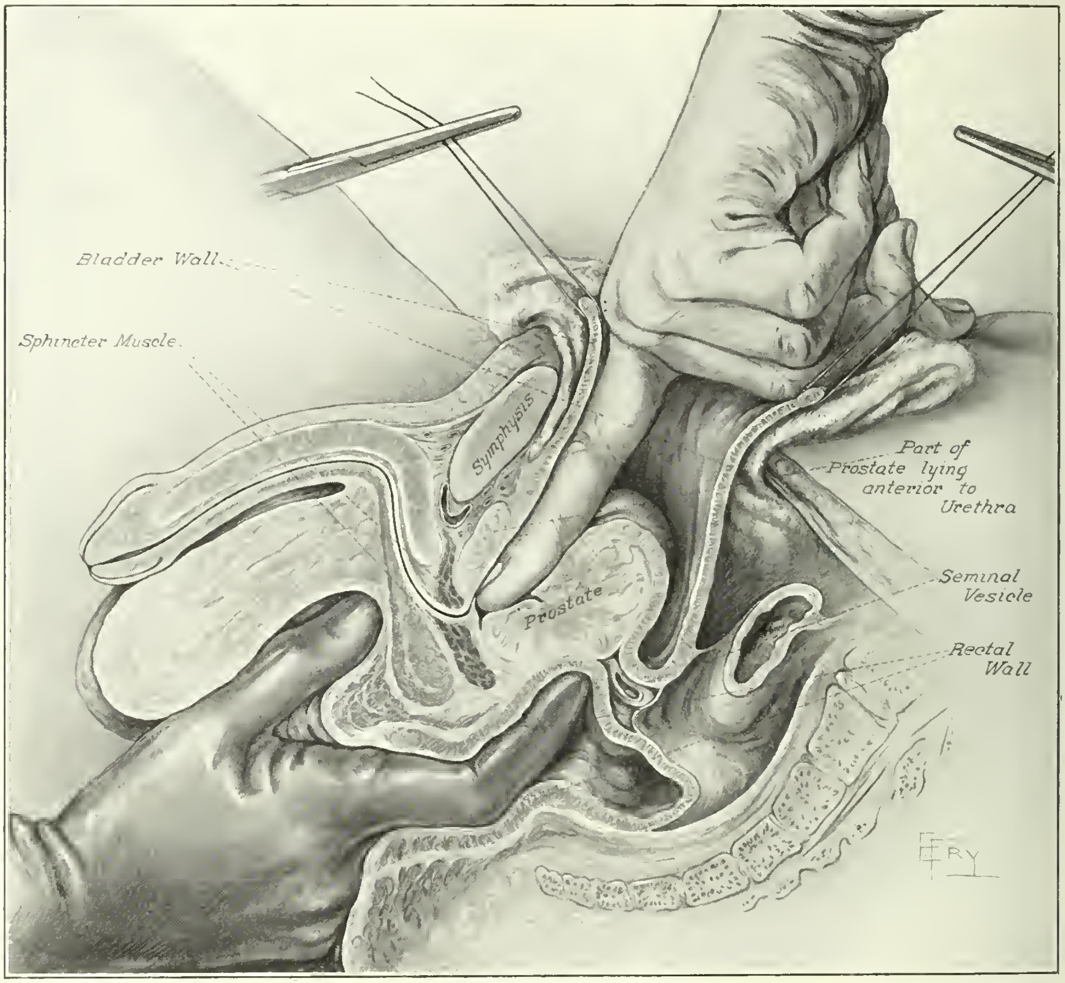

Fig. 2. The forefinger of the gloved right hand in the rectum pushing the prostate up into the bladder. The forefinger of the left hand entering the prostatic capsule through the prostatic urethra.

The Alexander exercises may be helpful in these cases. The exercises are recommended on the supposition that the poor control is due to a lax muscle. The details are as follows: The bladder is filled with a solution of boric acid, and the patient is instructed to pass a part of it and then stop, holding the remainder as long as possible, then passing a little more, and so on until the bladder is empty, in this way exercising the weakened muscle. These exercises should be repeated several times each day.

Inability to completely empty the bladder after the prostate has been removed may be due to atony of the muscles of the wall of the bladder, which is essentially due to a nerve-lesion, or it may be due to incomplete removal of the gland, so that some obstruction still exists. If there be no existing nerve-lesion, such as tabes, and the gland be entirely removed, there will be no residual urine.

Since every enlarged prostate does not cause an obstruction, and since it is frequently difficult to prove the existence of a nerve-lesion, and, furthermore, since the residual urine may be due partly to mechanical obstruction and partly to atony, it is sometimes difficult to know before operation just how effectually the residual urine will be relieved by the removal of the gland. To determine this point more accurately, Crenshaw (Mayo Clinic) devised a method of measuring the muscular power of the wall of the bladder against a mercurial column. The normal contracting power is determined and a standard established by measuring the expelling power in a number of normal bladders. The obstruction can be relieved by introducing a catheter into the bladder, the contracting bladder exerts pressure on the fluid contents, and the amount of this pressure is measured in a manner similar to that of measuring the blood-pressure.

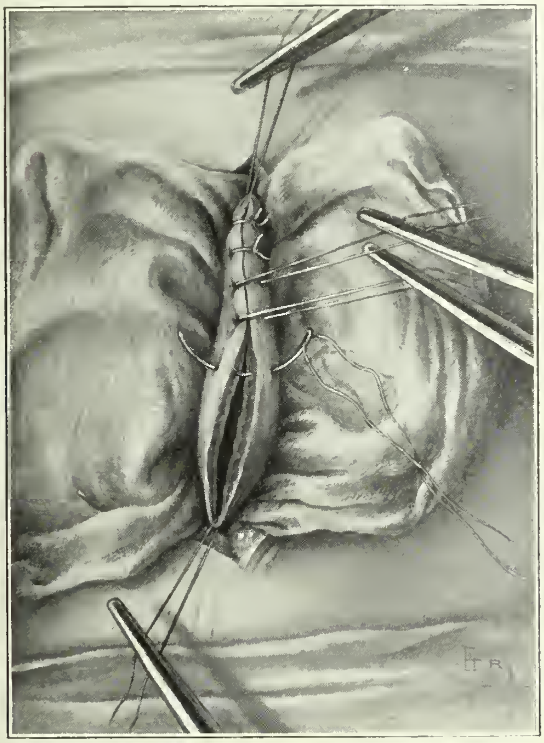

Fig. 3. The bladder supported in the wound by traction-sutures in the ends of the incision. The bladder being sutured by interrupted catgut suture. The sutures include all the coats except the mucosa.

The length of time required to heal a urinary fistula varies considerably. Following the perineal operation the fistula usually heals in from ten to twenty-one days. Following the suprapubic operation the fistulæ are often very slow to heal and sometimes require many weeks. Permanent fistulæ are usually due to a stone or tumor, or to a remnant of the gland in the bladder.

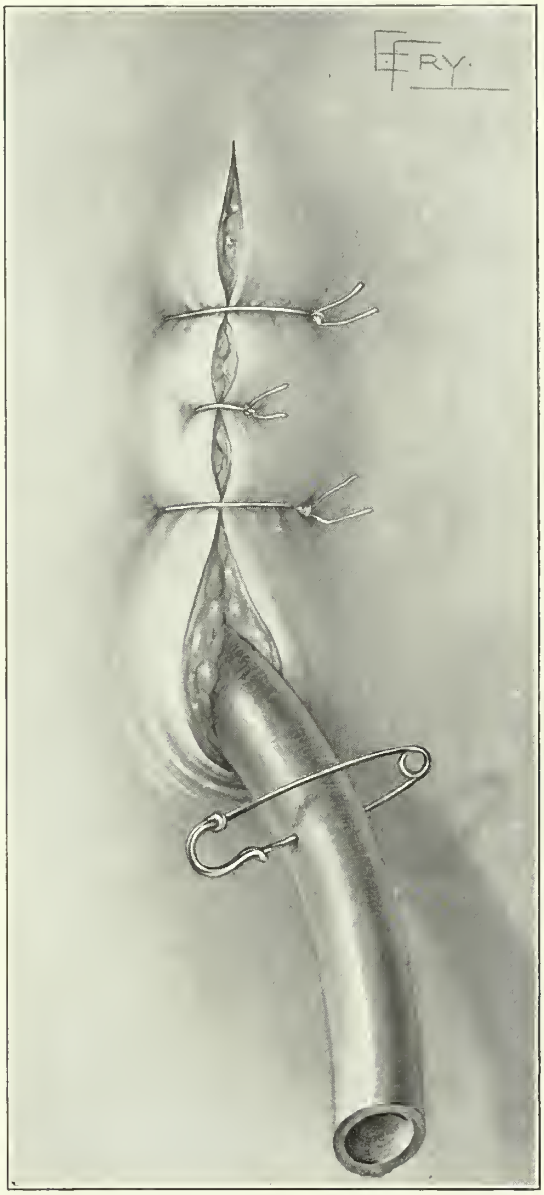

Fig. 4. The skin closed loosely. Rubber tube drain in the space of Retzius.

Recently we have endeavored to close the wound in the bladder completely when doing the suprapubic operation. This method has been most satisfactory in cases without a great deal of cystitis and if there be but little hemorrhage. The bladder is afterward drained by a catheter through the urethra, which will require constant irrigation until the urine comes clear and free from clots.

The catheter, with frequent changing, should be left in the bladder about twelve days. After removing the gland and washing all clots from the bladder, the coats of the organ, with the exception of the mucous membrane, are sutured by interrupted sutures. (Fig. 3.) The suprapubic operation should not be done if there be much infection or hemorrhage, but if it can be done, about one-half of the cases will heal without leakage, and the patients will be more comfortable and will have a short convalescence. (Fig. 4.) If the wound does not break open there will be little drainage after several days, and little or no infection following these operations.

DISCUSSION

Dr. B. A. Bobb (Mitchell): I want to thank Dr. Judd for this most excellent paper.

I would like to ask one question. He makes no difference in regard to operation whether he takes the suprapubic or perineal route, when the prostate gland protrudes into the bladder or does not at all. One theory was, if the prostrate did not protrude into the bladder, it was better to use the perineal route, but if it did, the suprapublic was better. I would like to ask whether he uses the suprapubic method irrespective of the protrusion of the gland?

Dr. Franklin O. Wright (Minneapolis, Minn.): In a recent study of the anatomy of the prostate, Professor Zukerkandl gives proof that hypertrophy of the prostate always begins in the triangular portion between the ejaculatory ducts or the so-called middle lobe. This being true, hypertrophy always begins in the upper part of the prostate. It pushes the mucous membrane upward toward the bladder and the ejaculatory duct, and the remnant of the prostate downwards and forwards. The functional (sexual) results depend on preservation of the ejaculatory ducts. If you operate from the perineal route you are bound to cross the tract where they join the urethra before you reach the tumor. If you operate by the suprapubic route you split the mucous membrane of the bladder and come directly upon the tumor, and are able to remove it without disturbing these ducts. If you study the physiology of the sexual act you will find that when a man has intercourse he will not have ejaculation unless his seminal vesicles are full. Studies in the anatomy of the seminal vesicles and prostate show that the sphincter, which controls the seminal vesicles, is not at the seminal vesicles, but lies in the mucous membrane of the urethra. If in operating we destroy the ejaculatory ducts between these two points, that is, between the seminal vesicles and the mucous membrane, we allow permanent drainage of the seminal vesicles, and the man becomes impotent.

As regards the number of cases which preserve their "sexual" life after operation: The figures show when operated on by the suprapubic route somewhat over fifty per cent preserve their sexual life; when operated on by the perineal method over fifty per cent have their sexual life destroyed. The secret of a successful operation from a sexual point of view is to preserve the ejaculatory ducts, and this is best accomplished by the suprapubic operation.

Dr. Edward S. Judd (Essayist): We formerly preferred the perineal operation, choosing this method in all cases in which we were able to reach over the gland in the rectal examination. The ability to control the urine is not always good after the perineal method. We have yet to see the first case of incontinence following the suprapubic operation. We have paid little attention to saving the prostatic urethra. The prostatic urethra is frequently greatly deformed and may be twice as long and flattened or depressed, and we can entirely remove it without stricture or other trouble following.

As to irrigation with a two-way catheter: I have not been able to get a satisfactory two-way catheter, so we use the one-way catheter only. The catheter must be given constant attention until the urine is clean and free from clots, and that requires from twenty-four to forty-eight hours.

I never yet have seen a case of loss of sexual power from the removal either by the suprapubic or the perineal operation of the prostate gland, unless the individual had suffered loss of power before he was operated on. However, every case I have had of that nature has shown evidence of such loss before operation. Young makes a strong point of the preservation of the seminal vessels, and we try to work along the same line.

RECTOSIGMOIDOSCOPY*

By A. C. Strachauer, M. D.
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MINNEAPOLIS

The terminal portion of the alimentary canal is the seat of a great variety of pathologic conditions. The anatomic and physiologic normality of this region is absolutely essential to the well-being of the individual. Slight alterations and minor lesions make daily life a misery and, directly or indirectly, undermine the very vitality. In no other locality in the entire anatomy does cancer develop so insidiously and symptomlessly, progressing often to the fully developed inoperable stage, the patient being absolutely unaware of the condition until hopelessly doomed.

Due to its pelvic relationship, there is in this lower bowel region an anatomical locality which is absolutely inaccessible to palpation above the pelvis, to digital exploration from below, or to the combined or bimanual examination. I refer to that portion of the canal between the upper sigmoid colon and the lower rectum. Disregarding the anatomical limitations to palpation, manual or digital, palpation is of value only in advanced, well-developed lesions, and then elicits only slight differential information. It is at best a blind method.

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*Read before the Hennepin County Medical Society, March 4, 1912.

The endoscopic examination of this entire region, of the complete rectum, sigmoid, and contained structures, is most satisfactory. The information it gives is definite. Every portion of the mucous membrane from the ano-cutaneous "white line" to well up into the sigmoid, and, in favorable cases, the end of the descending colon, may be brought under direct ocular inspection and scrutiny. The slightest pathologic change, the mildest congestion, change in color, unevenness, abrasion, or ulceration may be detected and studied. Not this alone, but small portions of new growths or ulcerations may be removed with suitable instruments for microscopic diagnosis without the slightest danger or inconvenience to the patient. This latter procedure is not to be omitted, even in cases palpable digitally and in which a positive clinical diagnosis is made with or without ocular inspection, as is well illustrated in Case 1 in the appended list of cases.

Rectosigmoidoscopy compares favorably in its results with many of the special methods of examination, such as ophthalmoscopy, larynogoscopy, cystoscopy, blood-study, or urinalysis, and is many times more important than the examination of the feces. It should be made a routine procedure upon the slightest indication. The examination of the lower bowel when limited to a digital exploration is comparable in its incompleteness to the examination of the mouth, pharynx, larynx, and their contained and communicating structures by a blind man who, without recourse to the laryngeal mirror and ocular inspection, would be obliged to depend upon digital palpation alone.

Anatomical considerations.—The conception of the rectum as gained in the dissecting-room is incorrect and incomplete. This is true regarding many structures, including notably the stomach, of which the Roentgen ray study has completely changed the earlier and quite recent teaching regarding its shape, position, function, etc. We must study living anatomy, for it is with the living, functionating organs that we have to deal. The rectum, as studied with the endoscope, is not a mere tube. It should be described as being more like a bag or pouch, with an internal structure of three tranverse shelf-like valves, the whole occupying the lower portion of the true pelvis from the second sacral vertebra to the perineum, its posterior wall being closely applied to the hollow of the sacrum. This pouch at its greatest circumference, that is, at the ampulla, measures as much as eleven inches.

The shelf-like rectal valves are real valves, being composed of muscle and fibrous tissue covered with mucous membrane. They are attached to about one-half of the circumference of the wall, and project into the lumen of the bowel. The first valve is situated on the left side about three and one-half inches from the anus; the second, on the right side an inch or more higher; and the third, on the left side at the entrance into the sigmoid from below. These valves are not present in quadrupeds, and in man seem to be an adaptation to the erect position, their purpose being to assist the sphincters in supporting the feces, which they break up into segments, each supported by a valve. They are found present, well formed, in the human embryo, and so seem to constitute an essential part of the human rectum. The true rectum has no mesentery.

The anal canal is the exit from the rectum through the perineum, and is a potential canal, its walls being normally in close apposition except during the act of defecation. It varies in length from one to one and a half inches, depending upon the thickness of the perineum. It is important as being the site of hemorrhoidal and fissure formation.

The sigmoid consists of two portions, and is so described by the German anatomists. The first lies in the iliac fossa, extending from the crest to the brim of the pelvis. It has no mesentery, and is more correctly known as the iliac colon. The second portion has a mesentery, and so is the movable portion extending from the brim of the pelvis to the beginning of the rectum at the second sacral vertebra. This second portion is more correctly known as the pelvic colon, and forms a variously shaped coil, usually lying in the true pelvis, but which may, when distended by contents, rise partially above the brim, so making growths within it palpable on one day perhaps, and not on another. The iliac colon is usually five or six inches in length, while the pelvic colon may measure from five to thirty-five inches in length, having an average of sixteen or seventeen inches. The length of the rectum is more constant, being five or six inches.

An appreciation of this anatomy, or the experience of a single endoscopic examination of the parts, will convince one of the folly and futility of attempting high passings of the colon tube. Nine times out of ten when this is attempted and supposedly accomplished, the tube lies coiled up in the ampulla of the rectum. This has also been shown most convincingly by Emil Beck, L. Lilienthal, and others, by the taking of skiagraphs showing the tube coiled up as described.

Instruments.—The ordinary rectal specula, the Sims, the bivalve, the fenestrated, and the conical are limited in their usefulness to the lower two or three inches of the bowel, practically the anal and sphincteric region. For the higher examination the endoscopes are necessary. These consist of cylindrical metal tubes of various length, some depending upon reflected light for illumination, and others containing an electric lighting system. The writer prefers, and uses, the German Strauss instruments, consisting of two tubes, the proctoscope being seven inches in length and one in diameter, and the sigmoidoscope fourteen inches in length and three-quarters of an inch in diameter. They are fitted with an electric lighting system similar to that of the modern cystoscope. Caps containing a glass window or lens focused to the length of the tube may be attached to the proximal end of the instrument. The sigmoidoscope has an inflation-pump attachment. The electricity for the lighting may be obtained from a dry cell battery or through a rheostat from the ordinary lighting currents.

The technic of the examination.—A thorough complete history is of the same importance here as in other fields of practice. The intimate relation between the pelvic contents makes an inquiry into their condition necessary. An enlarged prostate, a stone in the bladder, or a displaced uterus may produce symptoms referred to the rectum. The lower bowel should be emptied of its contents by giving a cathartic on the night before, and by an enema or two on the day of the examination. In some cases a preliminary examination should be made without this cleansing so as to ascertain the presence of blood, pus, or mucus, and its character.

The position of the patient.—The examination may be made in the Sims, the lithotomy, or the knee-chest position, the latter being by far the most advantageous and the position of choice. The knee-chest position, with the buttocks as high as possible and the head and shoulders as low as possible, results in a gravitation of the intestines toward the upper abdomen, thus allowing a distention or ballooning of the rectum by the entrance of air through the endoscope. This expansion by the atmospheric pressure alone usually suffices for the examination of the entire rectum and sigmoid. When necessary the latter may be inflated by the pump-attachment of the sigmoidoscope. The endoscope, warmed and well-lubricated, is inserted into the rectum at a right angle to the sphincter, and then, under guidance of the eye, is introduced through the lumen of the bowel, as desired, so permitting of careful, thorough inspection and study of the parts. As elsewhere in the alimentary tract, malignancy and ulcerations in the lower bowel develop most frequently at the sites of greatest irritation, hence the rectal valves are most commonly involved in cancer lesions. Next in frequency cancer develops at the rectosigmoid constrictor or the rectosigmoid flexure.

The indications for the endoscopic examination.—Any symptoms, however slight, giving a suspicion of difficulty referable to the lower bowel, which can not be satisfactorily and completely explained by physical findings, calls for a proctoscopic or sigmoidoscopic examination. This is especially true if the patient be in the cancerous age. Think of the satisfaction of discovering an early malignant lesion before any perirectal or pararectal infiltration has taken place, so that the condition is still in the curable, operable stage. There is also great satisfaction to both practitioner and patient in the assurance of the absolutely negative findings made possible by the examination.

Cancer must be diagnosed in the incipient stage before perirectal or pararectal infiltration has taken place, despite the slow growth of malignancy in this region. A case curable by operation this week today, may be incurable by an operation in six months or a year.

The symptomatology and pathology of the region under consideration are each large subjects, too large for proper discussion. However, the recognition and diagnosis of carcinoma is so important that a review of its symptoms will be given. As has already been stated, the very first symptoms calling attention to carcinoma of this region may be those of acute complete obstruction from a well-developed growth. If earlier warning has been present the patient has considered it too trivial to mention. The symptoms may consist wholly of a sense of fullness, or of weight or discomfort in the region of the sacrum or in the pelvis. Bearing down may alone be complained of. A history of an increasing tendency to constipation, when alternating with diarrhea, should always arouse suspicion. Digestive disturbances of a vague nature commonly accompany the above. Pain as a symptom depends upon the location of the lesion. If low down, and especially when within the field of action of the sphincters, pain is usually very prominent. If the lesion be located high, as in the sigmoid, pain as a symptom, early or late, is usually absolutely absent. Pain, when present, may be of a dull, heavy character, or of the "shooting-down-the-extremities" type.

The discharges from the bowel, when present, may consist of mucus, mucus streaked with blood, and, in the later stages, distinct discharges of blood. Bleeding from the bowel may be the first symptom of cancer. The blood may be bright red or it may contain dark clots when the fluid is thin and watery. When the blood has remained in the bowel some time it will be brown or grumous, of a prune-juice character, and may be most offensive. The symptoms of the late stages of carcinoma, of cachexia, frequent desire to defecate, straining, tenesmus, colic, the symptoms of partial or complete obstruction, tell their story so plainly that the diagnosis is usually simple and self-evident. The morning stools in the advanced conditions may consist wholly of pus and blood.

There are a number of other conditions having some of the above symptoms, and the only definite and positive means of differentiation and so of diagnosis is by the visual, ocular examination and the microscopic study of removed tissues. Scirrhous carcinoma of the rectum very closely resembles simple fibrous stricture, lacking, of course, the ulcerative, suppurative, or traumatic history. Its diagnosis is possible only by the aid of the microscope. Diverticulitis may, and usually does, so closely resemble carcinoma that the microscope alone makes the differentiation. This is true at times of tuberculosis. (See Case 1.)

The so-called "rectal shelf of Blumer," consisting of a metastatic or tuberculous deposit and growth in the cul-de-sac of Douglass, as from gastric carcinoma or tuberculous peritonitis, causes a projection into the rectal cavity, in the male about an inch or more above the prostate, having a cartilaginous feel to the examining finger. It may be mistaken for primary carcinoma, and has been so operated upon.

Sarcoma occurs in the rectum. The mucous membrane is freely movable over the growth in the early stages, and the same is, of course, true of fibroma. In the sarcomatous development the mucous membrane may become adherent to the growth, and the whole mass pedunculate from traction with subsequent ulceration and hemorrhage. When of the melanotic type, the mass appears black and gangrenous, grows most rapidly, and is characterized by wide dissemination of metastasis.

Every case of hemorrhage from the bowel must be investigated and its source absolutely definitely located. Hemorrhage may occur in some of the anemias, purpura, scorbutus, proctitis, polypi, ulceration, and duodenal ulcer. Hemorrhage ascribed to hemorrhoids continuing after an operation for the condition, demands a most careful investigation.

Rectosigmoidoscopy has a large field of usefulness in the recognition and treatment of nonsurgical conditions, such as simple, ulcerative, or hemorrhagic proctitis, sigmoiditis, and colitis. Topical applications may be made to ulcers and other lesions. The accurate introduction of the colon-tube into the sigmoid or lower end of the descending colon through the endoscope, thus avoiding the usual coiling of the tube in the ampulla, may be accomplished, permitting of therapeutic irrigation of the complete large bowel in colitis and dysentery. In acute obstruction of the bowels due to the presence of a growth in the rectum or sigmoid, a tube may at times be passed beyond the site of obstruction, thus giving temporary relief, avoiding an enterostomy or colostomy, and permitting the patient to rally from the intoxication and get into condition for radical removal of the growth later. (See Case 7.)

Those cases of chronic obstructive constipation due to, or in part due to, overdevelopment, hypertrophy, or thickening of the rectal valves, may be cured or improved by the division of the offending rectal valve through the endoscope. The indication for such valvotomy is ascertained by ocular inspection and by drawing the valve down with a long blunt hook. Normally, little or no resistance should be offered, but, when over-developed or infiltrated with fibrous tissues as a result of chronic interstitial inflammation or ulceration, the resistance may be considerable.

Hirschsprung's disease, characterized by periods of most extreme obstipation followed by periods of diarrhea, may be diagnosticated by the finding of the giant colon. The sigmoid valves are greatly developed, resembling the normal rectal valves in this condition.

A chronic diarrhea may be due to a multiple poliposis, for the diagnosis of which the endoscopic examination is indispensable.

Benign growths in the rectum are always important from a diagnostic point. They may mechanically cause obstruction, and, when ulcerated, cause hemorrhage resulting in profound anemia. When in the rectum, the dragging by the feces upon pedunculated growths at times causes extensive prolapse. (See Case 2.) Benign growths in the lower bowel are fairly common in children, giving the same symptoms as above. Adenoma is the most frequent type. They frequently become pedunculated. Polypi, either single or multiple, occur not uncommonly. Contrary to the general impression, children are also subject to hemorrhoidal and fissure formation. Polypi may be removed by suitable instruments through the endoscope and the internal openings of fistulæ discovered.

Lesions of the coccyx may be responsible for symptoms referred to the rectum. Examine the patient for coccygodinia when pain is complained of in this region. It occurs most commonly in women following childbirth, but may follow other trauma causing a rupture or stretching of ligaments, or fracture or dislocation of the component bones. Anterior curvature of the coccyx, congenital or acquired, causes a bulging into the rectum and a point of pressure. The passage of feces over this area may result in an ulceration responsible for a discharge of pus and blood. The coccygeal body (Luschka's gland) is subject to inflammation, abscess, and cyst formation. Dermatoid cysts also occur, causing rectal pain.

The function of rectosigmoidoscopy is to clear up symptoms, to modify and to make exact diagnosis, and to aid in deciding upon the most advantageous operation in each individual case. Its surgical and non-surgical therapeutic usefulness is quite as great as its diagnostic services.

No rectal examination is complete without a proctoscopic inspection. The endoscope alone makes possible the diagnosis of the pathologic condition of the upper rectum and pelvic sigmoid. It is the only method by which an early malignant lesion may be detected. If more general advantage were taken of its benefits and earlier diagnosis made, hand in hand with the well-recognized low malignancy of growths in the lower bowel, an amazing increase would result in the number of permanent cures.

The appended lists of abstracts, selected from among the writer's cases, serve to illustrate some of the various phases of the usefulness of recto-sigmoidoscopy.

CASE ABSTRACTS

Case 1.—Patient, T. G., male, age 47, complains of a dull, heavy, aching feeling and pain in rectum and small of back; periods of constipation alternating with diarrhea. Loss of twenty pounds in weight in past year. Passage of red-blood and black stools at times. Digital rectal examination reveals a hard mass the size of the thumb. Clinical diagnosis: carcinoma.

Upon the above diagnosis a Kraske operation was planned and agreed upon. A proctoscopic examination two days before operation showed at the site of the first rectal valve an ulcerated, hard, angry-looking mass, having much the appearance of cancer. With tissue-cutting forceps two pieces of the growth, one of the growth proper and the other from the overhanging margin, were removed for microscopic examination.

Pathologist's report: Tuberculosis. Dr. H. E. Robertson, University pathologist.

Operation: Instead of the formidable unnecessary Kraske operation, a simple removal of the mass with curetting of the indurated tissues and fistulous tract beyond, was performed. The patient when seen recently, nine months after the operation, was in splendid health, and had gained in weight, complete healing having resulted.

Case 2.—Patient, R. B., baby girl, aged three and one-half years. For the past year at each defecation there is rolled out a portion of the rectal mucous membrane, which prolapse remains, the child crying and screaming until the mother pushes the protruding mass into the rectum, or until spontaneous reduction occurs. The condition has increased in severity, and at times small quantities of blood, mucus, and pus are passed. The child has become nervous and irritable, sleeps poorly, and its general condition is below par. Upon the diagnosis of prolapsus recti the child had received medicinal treatment directed to the control of the feces. The buttocks had been strapped together with adhesive straps, and a harness for the same purpose had been worn, all without benefit. Repeated surgical advice had been non-operative, and the mother was told that the child would outgrow the condition.

Endoscopic examination under ether anesthesia: The mucous membrane of the upper rectum was fairly normal in appearance. The membrane of the anal and lower rectal region was inflamed, thickened, granular, ulcerated in areas, and covered with mucopus. Just below the upper margin of the inflamed prolapsing membrane there was an ulcerated pedunculated tumor the size of a hazel-nut. This was removed with long-handled scissors, and the bleeding base treated with tannic acid crystals, which promptly controlled the hemorrhage. The bowels were kept constipated for several days by the administration of paregoric, and then an oil enema was given resulting in a large bowel movement, no prolapse occurring at the time. Six months after the operation the mother tells me that the prolapse has never recurred since the operation, and that the patient is a "changed child" and well in every way.

Case 3.—Patient, A. L., little girl, aged 13. One year ago the patient had an attack of dysentery, lasting about a month, associated with much pain and burning in the rectum. Considerable loss in weight has occurred. Since the acute attack, alternating periods of diarrhea and constipation have been present, and for the past six months blood, bright-red, and tarry stools have been passed, at times daily and then again once a week. The mother says as much as six teaspoonsfuls of blood have been passed at a sitting. For the past month there is a frequent desire to defecate which, when responded to, is usually unproductive. The child is emaciated, weak, pale, and anemic.

Endoscopic examination: The sphincteric region is normal. The mucous membrane lining of the ampulla is pale, boggy, edematous, and covered with mucus and mucopurulent secretion. Pushing aside the second rectal valve with the endoscope, an ulcerated area the size of a nickel was disclosed.

Diagnosis: Chronic ulcerative proctitis.

Treatment: Simple diet, astringent enemata mornings and evenings, and local applications of the saturated solution of silver nitrate healed the ulcer in six weeks. The child when last seen was greatly improved, had gained in weight and hemoglobin, and was well on the road to recovery.

Case 4.—Patient, I. F., aged 56. Patient comes complaining of severe left-sided "sciatica" of two years standing, for which medical treatment had not given relief. Gives a history of alternating attacks of constipation and diarrhea, and complains of indigestion. No discharges from the anus.

Digital rectal examination: Medium grade of hypertrophy of the prostate present; otherwise negative.

Endoscopic examination: Mild degree of internal hemorrhoidal formation; ampulla, normal; rectal valves, normal. A pale edematous area just below the recto-sigmoid flexure, which when passed brought into view an ulcerated, irregular, angry-looking mass two inches or more in diameter.

Ocular diagnosis: carcinoma.

A section was removed for microscopic examination, which examination confirmed the clinical diagnosis.

Case 5.—Patient, Anna B., aged 27, comes complaining of a burning and sense of weight in the rectum and pelvis, and a swollen and extremely painful left ankle of one month's standing.

Proctoscopic examination showed the mucous membrane of the rectum greatly inflamed and covered with mucopurulent fibrinous patches. Smears taken from the purulent areas stained to Gram's negatively, and showed positive gonococci.

Diagnosis: gonorrheal proctitis and gonorrheal synovitis.

Discharge from vagina showed gonococci, but vaginal and urethral symptoms were absent. The patient received local applications of saturated solution of argyrol and silver nitrate through the endoscope twice daily, and promptly responded.

Case 6.—Patient, G. W., male, aged 47, complains of general weakness for three or four years, periodic hemorrhage from the bowel, the blood being bright-red. Bowels usually regular, and feces tarry at times. Had been operated on for hemorrhoids without cessation of periodic hemorrhage. Examination shows a pale, anemic, though fleshy, individual.

Digital rectal examination, negative. Endoscopic examination of anal region, negative. No hemorrhoids. Ampulla and valves, normal. Attached to the lower posterior rectal wall by a narrow pedicle there was a dark-red, ulcerated polypus the size of a pecan. This was removed, the brisk hemorrhage following being controlled by pressure and the application of tannic acid. The complained of hemorrhage ceased.

Case 7.—Mr. A. B., about 50 years of age, had always enjoyed good health, was taken without previous warning with acute complete obstruction of the bowels. A week had progressed without effect from attempted catharsis or enemata, and the patient was in extremis. Abdominal and rectal palpation were negative. Sigmoidoscopic examination revealed an obstructing carcinoma in the sigmoid. The patient's condition, due to the obstruction of a whole week, was such as not to warrant other than the imperative temporary relief of drainage as by a colostomy or an enterostomy. This was avoided by the successful passage of a colon-tube through the sigmoidoscope under guidance of the eye past the carcinomatous obstruction. Profuse drainage of liquid fecal material resulted through the colon-tube, which was left in situ for drainage and irrigation. Belladonna was given to relax the spasm at the site of the obstruction. The patient rallied, and later, when in splendid condition, was successfully operated on, the two-stage radical procedure being performed.

A CASE OF TRAUMATIC INCONTINENCE OF URINE AND CONGENITAL ABSENCE OF VAGINA, WITH OPERATION AND SUGGESTIONS FOR THE IMPROVED TECHNIC*

By J. E. Engstad, M. D.

MINNEAPOLIS

In the *Annals of Surgery* for 1904, Dr. Baldwin of Columbus, Ohio, reports a case of congenital absence of vagina, with a description of an operation by which his patient was provided with a serviceable organ.

Dr. Baldwin has subsequently reported two or three more cases. Mueller of Munich has reported one case operated on by H. R. H. Prince Ludvig Ferdinand; and one case by Mori has been reported since I performed the operation described in this paper.

In the early part of 1910, a well-developed prepossessing foreign-born woman consulted me for incontinence of urine, from which condition she begged relief, stating that she had consulted many physicians, none of whom had given or promised her permanent relief from the well-nigh intolerable condition.

On examination I found a well-developed pudendum and all organs apparently normal. Further inspection, however, revealed the fact that both the urethra and the vagina ended in pouches one-half and one inch in depth, respectively. From the vaginal pouch urine flowed freely through a large and patulous meatus. The meatus was examined and found to end in a blind sack having no connection with the bladder. It was simply a fold in the mucous membrane with no evidence of contractile muscular fibers, the opening in the rudimentary vagina being through the urethra.

The patient gave a history of having consulted a number of physicians shortly after marriage. One, an exceptionally clever man, dilated the opening in the shallow vagina, misjudging it for a dense fibrous hymen, neglecting, in a moment of forgetfulnes, to sound the blind urethra. After dilatation large enough to admit a speculum the faulty diagnosis was realized, but the procedure was unfortunately followed by incontinence.

The urethra was patulous and of sufficient size to admit the finger. Slight contractions of the circular fibers of the sphincter urinæ muscle were felt, showing the fibers were under partial control. This was to a degree reassuring.

First operation.—A V-incision, including the mucous membrane of the vagina as well as of the urethra, was extended in an elliptical form. After the resection of the V-shaped piece, so as to follow the muscular fibers of the sphincter muscle, the mucous membrane was carefully dissected away from the muscular fibers, leaving the contractile muscles of the urethra intact.

After the mucous membrane had been dissected away from the connective tissue and the repaired urethra, the lower part of the muscular fibers was resected for about one-third of their circumference, leaving part of each end dissected away in such a manner as to lengthen the mucous membrane.

The urethral mucosa was first united to within a short distance of the bladder by linen sutures, then the cut ends of the muscle were overlapped and united with fine chromicized catgut, tension and excision combined narrowing the orifice to within one-third of its former diameter.

To complete the operation the vaginal mucosa was sutured with silkworm gut in such a way as to assist in lengthening the canal, the technic being a variation of the Engstrom-Pawlik operation. Engstrom and Pawlik have each reported two cases operated on for incontinence following trauma.

This surgical measure was followed by perfect control, and no complications whatever interfered with a perfect union. The linen sutures uniting the urethral mucosa were removed through a Kelly speculum on the eighth day.

After a lapse of about two months the patient again consulted me, this time for a violent cystitis. As the meatus was very sensitive, further examination was deferred until the patient could enter the hospital, which she did on the following day, when an anesthetic was administered, and the viscus was found to contain a number of calculi.

Second operation.—Keeping the patient under anesthesia, we hurriedly prepared to crush and evacuate the foreign body in the bladder. My lithotrite, evacuator, and other bladder instruments having been left at another hospital, we hastily improvised other instruments. A Ferguson hemostat made an excellent crusher. Its beak being blunt minimized the danger of wounding the bladder-wall. A Mayo gall-stone scoop and forceps proved excellent extraction-instruments, while a large ear-speculum gave a better view of the field than a Kelly speculum could have done. Ordinary irrigation washed away the débris.

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*Read before the Grand Forks (N. D.) District Medical Society.

The operation was entirely successful. In one of the calculi a tiny end of linen suture was found, which must have been lost into the bladder when the sutures in the urethral mucosa were removed. There was no recurrence, and in due time both the urethra and the bladder performed their functions without discomfort of any character.

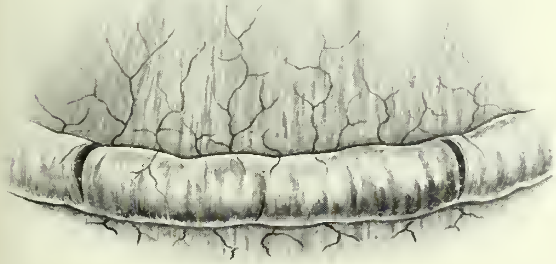

Fig. 1. A portion of bowel excised to form an artificial vagina.

Third operation.—The technic for the operation for artificial vagina was as follows:

An incision through the floor of the rudimentary vagina, the skin, and the fascia, to the marginal ring of the anus, gave access to the deeper structure of the perineum. Here careful dissection was necessary, great care being taken to avoid tearing the anterior rectal wall, an accident which would preclude further progress of the operation, except at greatly increased risk to the patient. We know that a tear in the rectum in prostatectomy is a dangerous complication, and it would be more so in this operation considering the exposure to infection to which the peritoneum would be subjected.

After the opening was made sufficiently large to admit the largest make of vaginal speculum, this part of the field was turned over to an assistant, and celiotomy made along the median line.

We found in the folds of what appeared to be rudimentary broad ligaments two well-developed ovaries and some loose tissue resembling Fallopian tubes, but not a vestige of either vagina or uterus. The bladder was normal except it had floor support only at the neck.

Search was then made for a loop of the most dependent part of the intestines. About the middle of its tract, it was stretched downward and found to be of sufficient length to admit bringing the ends of the resected gut to the external part of the opening without subjecting the attached mesentery to undue stretching. About twelve inches were clamped and cut, and the segment wrapped in gauze. The cut ends of the main tract were then reunited by a Lamaire button, which is a marked improvement on the Murphy button, and was used instead of the customary stitching, thus saving about ten minutes of time.

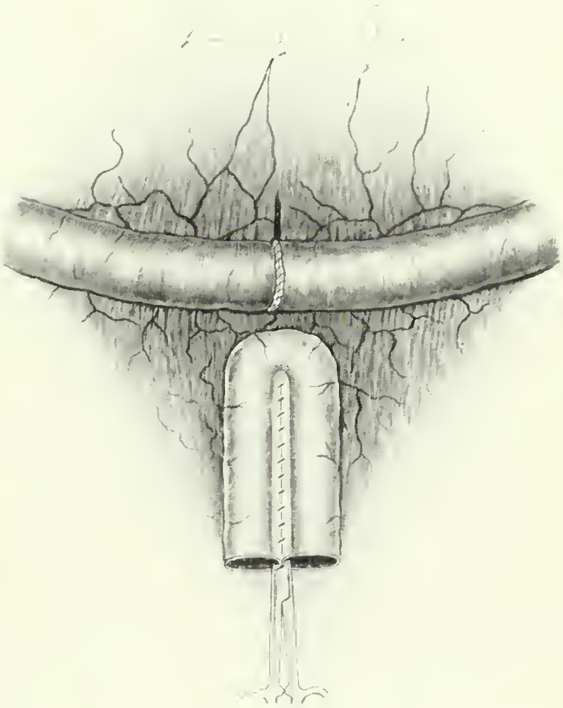

Fig. 2. The artificial vagina.

With the aid of an assistant the resected segment of intestine was brought into the wound in the lower pelvis, cut ends first, and immediately stitched with catgut to the fresh wound in the perineum close to the marginal edges of the skin and vaginal mucous membrane, care being taken to approximate the distal part of the lumen of the bowel from its mesentary attachment.

A long clamp was then introduced with one blade in each leg of the loop, the bowel being doubled on itself like an inverted U. The object in view was to obtain pressure-necrosis along the whole length of the gut, while inflammatory adhesions would unite the serous membrane, leaving one large roomy organ.

The patient made an uneventful recovery with one exception. A slight necrosis on one side of the right segment of the bowel caused a tendency to scar-contractions and narrowing of the external orifice. This bothered her considerably for some time, but was satisfactorily remedied by a subsequent minor operation.

The organ is roomy and nearly six inches in depth. The operation does not present any serious difficulty to an experienced operator, but to an amateur it might present some difficulties, which, if not properly met, might endanger the patient's life or materially mar the perfect success of the operation.

The technic as followed by other operators, as well as in my own case, is open to numerous modifications, all of which may tend to its greater usefulness.

Dr. Baldwin and other operators have, I believe, inverted the cut ends of each segment of the gut and brought the bow into the wound. In my operation I modified this by bringing the ends into the field with the bend extending upwards into the pelvis, the mesentery extending outwards laterally, the median lines of the bowel approximated.

Another time, if occasion requires, I shall sew the segments together laterally with two rows of silk or linen sutures, one row of sutures on each mesal side of the gut, the rows being about one-fourth of an inch apart, and then cut the septum with a pair of long and slender scissors. If this procedure is followed there will be no danger from hemorrhage of the most distant part of the bowel from the mesentery.

If the mesentery be carefully cut all the distance to its attachments leaving the bowel attached to a fan-like section, its cut edges can be run over with catgut sutures and the cut edges of the main portion reunited. This will complicate the operation as there will then be the additional danger of necrosis from wounded or cut arteries and from hernia under the resected portion.

For the incontinence, Engstrom's operation was modified by suturing the muscle separately and by lengthening the lumen of the urethra.

Congenital absence of vagina is not an extremely rare defect. I have found seven cases in my private practice. Such women can be made happy and successful wives, though not mothers; and, further, it will remove the tendency to psychic trauma due to the realization on the unfortunate woman's part that she was born with a serious physical defect.

After a successful operative procedure of this kind, she is capable of a useful and happy life, which would otherwise be impossible if not physically fit for a normal connubial relation.

PROGRESS IN MEDICINE

Abstracts of medical reprints and articles on file in the library of the Department of Medicine, College of Medicine and Surgery, University of Minnesota.

UNDER THE CHARGE OF

DR. CHAS. LYMAN GREENE

Professor of Medicine and Chief of the Medical Clinic

These abstracts are read and discussed at the departmental meetings held monthly at the University Hospital.

AUS DEN NOTIZEN MEINER PHYSIOLOGISCHEN UND PATHOLOGISCHEN FORSCHUNG

PROFESSOR M. MIURA, Tokyo

IV. The anatomy of the heart and its relation to the greater and lesser circulation.

V. The lesser circulation.

VI. A contribution to the origin of the so-called respiratory murmur.

VII. The respiratory murmur in pathological conditions of the lungs.

1. Miura says that the right auricle and left ventricle control the greater circulation, and the right ventricle and left auricle the lesser; that, while it is well-known that the left ventricle is three times as thick and powerful as the right ventricle, he is the first to make the observation that the right auricle is three times as powerful as the left auricle. Therefore both heart-chambers, which control the greater circulation, are stronger than those which control the lesser. The reason he gives for this, is, that respiration plays an important part in aiding the lesser circulation.

2. Inspiration increases the flow of unpurified blood from the right ventricle, and expiration aids in propelling the purified blood into the left auricle, and so we must consider the mass of the respiratory muscles as a second heart. Therefore in lesions of the aortic valves and in certain obstructions to the greater circulation, as for instance the nephritides and arteriosclerosis, we have not only a compensatory hypertrophy of the left ventricle, but also an hypertrophy of the muscles of expiration. Should this compensation fail, our therapy must be directed, not only to the hypertrophied and tired heart, but as well as to the hypertrophied and tired expiratory muscles, by means of galvanization and faradization.

On the other hand, in lesions of the pulmonary valves, in asthma and in obstructions to the lesser circulation, namely, pleuritis, pneumonia, emphysema, chronic bronchitis, etc., we have a compensatory hypertrophy of the right ventricle and of the muscles of inspiration. When this compensation fails, it is only logical to direct treatment, not only to the heart, but also to the muscles of inspiration, by means of galvanization and faradization.

Miura says that the ordinary conception of the respiratory murmur is, that it is due to the movement of inspired air. He admits this, but claims that part of it is due to the excess inrush of blood into lungs during inspiration. He claims to have proved this by interesting experiments on rabbits. By cutting off the inspired air by compression of the trachea, the effort of inspiration produced a modified respiratory murmur. The same was true when he cut off the blood-supply of the lungs by ligating the pulmonary arteries, showing that the combination of the two elements produces the characteristic murmur.

E. J. HUENEKENS.

THE CELLULOSE TEST IN THE DIAGNOSIS OF GASTRIC ULCER

BY HORACE W. SOPER

Archives of Diagnosis, April, 1911

This paper deals with a new method in diagnosis that may be valuable as regards occult blood in stomach-contents; the author tested 200 stomachs, normal or with functional derangement. Of these, 120 gave a negative, and 80 a positive, reaction. Hence he concludes that occult blood is not reliable.

The following technic is employed in testing feces for occult blood: Coarse vegetables are fed for three days, using raw cabbage, sauerkraut, radishes, celery, pickles, string beans, etc. At the end of three days the test is made.

Dr. Soper concludes:

1. The intermittent positive reaction so often seen in ulcer cases is probably due to dietary changes; coarse-fibered foods produce bleeding, while soft foods check it.

2. A negative test after a cellulose diet excludes active ulcer.

3. A positive test after the cellulose feeding that disappears with a bland diet is indicative of the presence of ulcer of the stomach.

F. A. OLSON.

VACCINATION AGAINST TYPHOID IN THE UNITED STATES ARMY

A. W. WILLIAMS, M. D., Captain Medical Corps, United States Army

American Journal of Medical Sciences, March, 1912

In a most interesting article, Williams gives the experience of our Army Medical Corps in relation to typhoid prophylaxis, with special reference to the experience of the Maneuver Division on the Mexican border during the spring of 1911.

It appears that 12,801 individuals were vaccinated against typhoid, remained in camp for four months, and developed but two cases of typhoid fever. During the same period the cities of San Antonio and Galveston, at which points the camps were located, reported 242 cases of the disease.

Williams quotes the report of the investigating board, consisting of Reed, Shakespeare, and Vaughn, to the effect that during the Spanish-American War typhoid developed in from three to five weeks in certain regiments of regular troops, and that within eight weeks 90 per cent of the volunteer regiments were affected.

For more direct comparison he quotes the experiences of the 2d Division, 7th Army Corps, assembled at Jacksonville, Florida, with 2,000 less troops than the Maneuver Division, for the same length of time, in the same latitude, with an equally good camp-site and an artesian water supply of absolute purity. Amongst these unvaccinated troops no less than 1,729 cases of typhoid developed, with 240 deaths.

The favorable experiences of the Maneuver Division resulted in an order making vaccination against typhoid compulsory. Quoting statistics for the years 1909 and 1910, Williams states that only 11 cases of typhoid occurred among those vaccinated, while in the non-vaccinated portion of the Army there were 304 cases. In the latter year 17,978 had been prophylactically treated, and in this group, representing about one-quarter of the Army, only 7 cases occurred, with no deaths. In the remaining three-fourths, there were 135 cases with 10 deaths.

The article is especially valuable because of the clear and succinct description which it contains of the preparation of the vaccine, the actual steps taken in its application, and the symptoms produced by it.

It appears that the present plan in the Army is to repeat the vaccination every three years, inasmuch as the period of immunity produced has not yet been definitely established.

The importance of this action on the part of the medical authorities of our Army is best appreciated when we remember that during the short term of the Spanish-American War 20,738 cases of typhoid developed and 1,580 deaths resulted; in fact this disease furnished 86.24 per cent of the entire mortality of the war.

C. L. Greene.

THE INFLUENCE OF CAFFEIN ON THE QUALITY AND AMOUNT OF SLEEP AND THE SPEED AND QUALITY OF PERFORMANCE OF TYPEWRITING

By H. L. Hollingworth

American Journal of Psychology, Vol. XXIII, pp., 89-100, and
The Psychological Review, Vol. XIX, 66-73

In two articles, published recently, the author has given his results in a portion of a research problem taken up with the following points in view:

1. To determine, both qualitatively and quantitatively, the effect of caffein on a wide range of mental and motor processes by studying the performance of a considerable number of individuals for a long period of time under controlled conditions.
2. To study the way in which this influence is modified by such factors as the age, sex, weight, idiosyncrasy, and previous caffein habits of the subjects, and the degree to which it depends on the amount of the dose and the time and conditions of its administration.
3. To investigate the influence of caffein on the general health, on the quality and amount of sleep, and on the food-habits of the individuals tested.
4. To inquire into the value and adaptability of a considerable array of simple tests, with a view to their standardization for the purposes of pharmacodynamic research.
5. To accumulate data on the effects of practice, fatigue, diurnal variations in efficiency, the physiological limit, individual and sex differences, and various other allied topics growing out of such an extended series of tests on a large number of subjects.

Rather elaborate experiments were carried out with the conclusions that small doses (¼ grain) of caffein did not cause appreciable sleep disturbance. Doses of 4-6 grains brought about marked sleep-impairment. More effect was noted when the drug was taken on an empty stomach, without food-substance, and on successive days, allowing cumulative action.

Age, sex, and previous caffein-habits seemed to have no appreciable effect.

In regard to the performance in typewriting, the drug in ⅓ grain doses quickened and in larger doses retarded. The quality of work is superior for the whole range of caffein doses of from 1-6 grains.

Further experiments are to follow.

E. T. F. Richards.

HOW CONSUMPTION IS CURED BY WORK

By Albert Robin, M. D.

Therapeutic Gazette, December 15, 1911

Medical men are prone to ignore anything but the scientific side of the great question of disease in its protean manifestations. Robin, however, has sounded a keynote, which, in its addition to the scientific literature on a much-mooted question, is of immense economic value.

After a brief therapeutic review of the subject of the treatment of tuberculosis, including the therapeutic use of tuberculin, he describes the management of the Brompton Hospital Sanatorium, Frimley, England. Here it was first observed that the latent cases, i. e., those who ran no temperature, but whose lungs were undoubtedly tuberculous, many old cases of fibroid phthisis being among the number, seemed to do better if given a moderate amount of work to do. Upon observing this the superintendent, Dr. Marcus S. Patterson, decided to try graduated manual labor in the selected cases. In 1904, when the Sanatorium and Convalescent Home was established, opportunity was offered to give the experiment a better trial. The force of paid employees necessary to conduct an institution on this basis would be ruinous here, but in England it is run at a cost of $315 per bed.

When the patient first comes to the Hospital a careful examination is made, and he is then put to bed and a careful record of his temperature is kept. If it is an afebrile case, he is then set at light work, such as sewing, making mats, etc. After two weeks of this light work, the temperature remaining normal, walking exercises are ordered. When the patient can walk six miles daily without a rise in temperature he is asked to make his own bed, change bed-linen, clean wards and windows, polish the floors and brass-work, and wash the dishes. After the patient has passed this period of probation successfully without a rise of temperature and with a pulse below 90, he is put at harder work, of which there are four grades, as follows:

Grade 1. Picking up wood, carrying baskets, watering plants, etc.

Grade 2. Using a small shovel for excavation, painting, cutting grass, hoeing, chopping wood, etc.

Grade 3. Using a large shovel, digging broken ground, mowing grass, sawing trees into fire-wood, etc.

Grade 4. Working with pick and shovel, breaking ground, excavating, mixing concrete, etc.

The women do the same kind of work as the men, but use implements of a smaller size. They also cultivate a small garden and have charge of the poultry. If a patient at any stage develops a temperature of 99°, he is put to bed until the fever subsides and then allowed to go to work. The fever, under these circumstances, indicates that the patient has received an over-dose of toxin, and his system is allowed to get rid of it.

The diet is liberal, breakfast consisting of cereals, bacon, etc.; dinner, of meat, suet and milk pudding; and supper of soups, oatcakes, Cornish pasters or cheese, etc. The conventional diet of milk and eggs has been found unnecessary, as the patients do so much better on the ordinary diet, the aim being to raise the weight to a few pounds above his highest known weight, or a few pounds above the normal weight for his height. No over-feeding is encouraged, as autointoxication from over-feeding is thought to be worse than if the patients do not gain quite so rapidly.

No drugs are employed at Frimley except an occasional laxative or other simple remedy for the relief of a particularly annoying symptom.

The daily routine, which is strictly adhered to, is as follows:

7:45 A. M. Patients rise, clean wards, dress and shave.

8:15. Breakfast.
9:30—10:00. Clean brasswork.
10:00—12:00. Work.
12:00—12:45. Rest.
1:00 P. M. Dinner.
1:45—2:30. Rest, and those who use tobacco smoke.
2:30—5:00. Work.
5:00—6:30. Recreation.
6:30. Supper.
7:15—8:00. Rest; smoke.
8:00. Prayers.
8:30. Lights out.
9:00. Silence.

Various respiratory exercises are used as the patient's condition improves, and also walks up sloping ground, etc., are prescribed.

As to the results obtained at Frimley: Robin states that there is a keenness to live and work, a return of fresh color to the face and skin, a progressive gain in weight, dependent not on fatty over-loading but on increase in muscular tissue.

The author was greatly impressed by the economic possibilities of such treatment, and it is conceivable that a number of industries could be adapted to the employment of tuberculous patients. Robin sees no reason why cities could not employ tuberculous people in the early stages, at least, in the construction of reservoirs, streets and sewers, park work, etc., always, however, under the supervision of a medical officer. He goes on to condemn or deplore our present policy toward the consumptive mechanic, teacher, etc., and says as a result of this phthisisphobia poverty and desolation follow in the wake of this dread affliction.

The article by Robin is one of the most practical and seemingly feasible solutions of the problem of tuberculosis that the reviewer has ever read, and it would seem as though a solution along the line of his suggestions might be worked out satisfactorily for that direst of human problems, i. e., to be poor and have tuberculosis.

J. E. Hynes.

THE TREATMENT OF TUBERCULOSIS AND OTHER DISEASES OF VEGETABLE PARASITIC ORIGIN BY DEEP MUSCULAR INJECTIONS OF MERCURIC SUCCINIMIDE. A THEORY OF ITS APPLICATION IN TWENTY-FOUR CASES

By Barton Lisle Wright, M. D.
Surgeon, United States Navy

Medical Record, December 2, 1911

The author has written before upon the treatment of tuberculosis with intramuscular injections of succinimide of mercury.

He has accepted Ehrlich's theorem, that every specific micro-organism has a specific chemical affinity, which, when found and injected, intramuscularly or intravenously, into the infected host, will cure the specific disease.

In his work the author has modified Ehrlich's theorem and formulated the hypothesis, that mercury is the chemical affinity for every vegetable organism. He expresses this in the following formula:

Vegetable antigen + Hg. + antibody + complement = complement-fixation (cure).

The author's twenty-six cases which he brings forward as a proof of the correctness of his theorem, consist of three cases of tuberculosis, three cases of typhoid fever, five cases of catarrhus epidemicus, ten cases of acute follicular tonsillitis, one case each of cystitis, otitis media chronica, cellulitis, chancroid, bronchopneumonia, and four cases of furunculosis.

It is only necessary to carefully scrutinize the author's reported cases to convince one that this contribution, no matter what the value of his previous contributions on the subject may have been, is of slight, if any, value from a scientific point of view. For instance, take Case 3, which is reported as one of pulmonary tuberculosis. No tubercle bacilli were found in the sputum. No mention is made of a tuberculin test to determine whether the patient really had the disease; and the patient was under observation only from May 16th to June 3d, since which time the author has not been informed as to his condition.

In the three cases of typhoid fever, no Widal test was made in any of the cases. Positive diagnosis was made by the dubious method of searching for the bacillus typhosus in a hanging drop of urine.

One's skepticism is further strengthened by the leucocyte count of 15,000 in one of the cases of so-called typhoid fever.

The one case of bronchopneumonia treated by this method was of left upper lobe consolidation, and began convalescence four days after the onset, which is not an unusual occurrence in an apical lobar pneumonia.

The other cases reported because of the uncertain length of their natural life-history need not be critically considered.

The paper is, to say the least, unconvincing.

Geo D. Head.

THE
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SEPTEMBER 1, 1912

THE DULUTH MEETING

The Minnesota State Medical Association which met at Duluth, Minn., August 14th and 15th, had a registration of about one hundred and sixty-five, about one-half the usual registration when the association meets in the Twin Cities.

The program, however, went through with but few changes, and the meetings were well attended.

Dr. Witherspoon, the President-elect of the American Medical Association, delivered an address on "Medical Education," and outlined the efforts of the A. M. A. in the education of physicians and laymen.

Dr. Witherspoon is a southerner and an orator, and he left a good impression on his hearers.

Dr. Oschner, of Chicago, delivered the oration on "Surgery." Dr. Oschner's reputation as a surgeon surpasses his ability as an orator, but everyone knows of his earnestness and skill.

The scattering papers from the men from the country were good examples of the worth and experience of men who work out their own line of observation and treatment.

The program committee tried out a new method of making a program. Thirteen hundred invitations were sent out, one to every member of the Association, requesting a paper and its title. There were but 165 replies, and of those who responded without giving a title of their paper, all were discarded. From the few who gave the subject of the paper they proposed to read, the program committee selected 36 papers, and these selections were apportioned out according to the number of replies from various cities and districts in the state.

The program committee were not satisfied with this manner of program making, but they did the best they could under the circumstances. They reported to the House of Delegates that some other method should be devised before the next meeting.

The House of Delegates expedited its business in fine shape without much friction.

The "Defense" Department of the Association proved the wisdom of its establishment. Only a small sum was paid out for protection of members, who were the victims of suits for malpractice.

The House of Delegates stood firmly on the impossibility of any retroactive payments where suits were brought against members that antedated the organization of the defense fund.

The Lancet Publishing Company was given a five-year contract for the publication of its transactions in THE JOURNAL-LANCET. This relieves the Association of the usual yearly unpleasantness and settles the question of personal bickerings between rival publications.

The election of officers was accompanied by unexpected friction between factions in the House, and was a regrettable occurrence.

Dr. R. J. Hill, of Minneapolis, who for twenty-seven years has been treasurer, was elected president of the Association, a deserving honor to a much beloved, and deserving and loyal worker.

Dr. Earle Hare, of Minneapolis, was chosen treasurer.

Dr. Thos. McDavitt was re-elected secretary, an office requiring intimate knowledge of detail and executive ability.

The next meeting place is Minneapolis, in October, 1913, a sufficient period after the meeting of the A. M. A. to enable the members to recover from a big event before participating in one of smaller, but none the less, important event in Minnesota.

The St. Louis County Medical Society entertained right royally, and all the visitors in Duluth enjoyed the boat ride and the sights of a city that is destined to be a great place before many years.

In spite of repeated warnings and urgent solicitations, too many members forgot to get receipts for their tickets, and only eighty out of a necessary one hundred turned in their receipts, and as a consequence there was no reduction in the return fare.

OUR NEWS ITEMS AGAIN

Dr. Geo. W. Beach, a graduate of the University of Paris, and until recently connected with the Iowa state sanitarium, has been appointed, by the Minnesota State Board of Health, superintendent of the Minnesota sanitarium for consumptives at Walker.

To the Editor of the News Column
of the JOURNAL-LANCET.

Dear Sir: The Minnesota State Board of Health has had nothing to do with this appointment.

The State Board of Control made the appointment with the assistance of the Advisory Commission.

Surely you ought to look into some things more carefully than you seem to.

Yours,
H. L. TAYLOR

The above communication shows again the deplorable error of our news items column. Some one must be severely censured for such gross violation and distortion of misinformation.

To be sure, it is generally known that the State Board of Health never does and never has appointed superintendents of State Institutions. All such appointments are made by the State Board of Control, they always have been, and probably always will be, but, in spite of the fact that everyone knows this to be true, a misstatement of such an important item is bordering on an almost criminal violation of a certain code of ethics.

Now, that the facts are known again, the editor will proceed to censure the publisher and proofreader, and they in turn will censure the editor. This has been done, and the advisory members of the Tuberculosis Commission, of which Dr. Taylor is chairman, will please note the fact.

The selection of Dr. Beach for superintendent of the State Sanitarium at Walker, is an admirable one, and the Journal-Lancet bids him welcome, and will do anything in its power to aid him in any way.

THE WORKINGMEN'S COMPENSATION LAWS AND THE LACK OF PROFESSIONAL COMPETENCY

For several years various commissions have been trying to frame laws that will cover compensation for working men for injuries and sickness, as well as to protect employers from unnecessary liability in case of accidents. The workingmen's compensation law proposed for Minnesota, is declared by Seth Low of New York to be admirable and worthy of adoption. He also suggests that there must be a uniformity of such laws in all states, otherwise it would have a tendency to encourage employers of labor to locate in states where the laws are less stringent. This is a great subject, and ultimately will be placed on a working basis.

This law is all very well, but what about the other workers? What about the various professions, teachers, lawyers, doctors, and ministers? Where will their compensation come from when they reach the age of uselessness and incapacity, after serving the public with the best years of their lives?

What becomes of all the professional workers after a few years of labor? Who ever hears of them, and who cares for them during their illnesses and in old age? Teachers grow old in service, and in some instances they are retired on small pensions. Men and women who teach in our universities, colleges, and schools for a modest salary, find they cannot lay aside enough to provide for the coming years of helplessness. A few may participate in the Carnegie fund, but the majority must look elsewhere for homes and care.

Lawyers are on a par with the average workman as far as earnings are concerned. A few achieve a competency, but the large majority drift into obscurity, or drop into other lines of employment.

Ministers are the most underpaid of any of the professions, and their ultimate end is a charitable institution, or they are housed among relations near or distant.

What is to become of the doctors who give their time to the service of the sick? How many of these are able to save or earn more than the common laborer? They are credited by the public as belonging to the large earners, but as a matter of record they simply make an ordinary living on account of the larger expense necessary in the conduct of their business. A certain number are able to lay aside enough to carry themselves and their families comfortably through life. A few in the cities do well, earn good fees, and make good investments. The men in country practice acquire property, such as farm or industrial investments, but the great majority approach old age nearly penniless. Where do they all go, who looks after them, who knows their end, and who knows upon whose bounty they exist? The state pays no attention to the professional worker. He is in a profession and must work out his own salvation, and how he lives and how he ends his existence, no one cares over much.

NEWS ITEMS

Dr. H. W. F. Law, of Hannah, N. D., has sold his practice.

Dr. Frank Dumont, of Mankato, has moved to Browerville.

Dr. G. A. Holdridge has sold his practice in Mankato and moved to Foley.

Dr. C. B. Jelstrup, of Nielsville, has resumed his former practice in Edmore.

Dr. Wm. Scanlan, of Hope, N. D., has sold his practice to his assistant, Dr. James.

Dr. E. F. Reamer, Mitchell, S. D., has left for a several weeks' stay in Portland and Salem, Ore.

Dr. H. M. Erenfield of Anamoose, N. D., has gone to New York to do post-graduate work.

Dr. F. D. Gray, of Marshall, Minn., has returned from Rochester, where he went for an operation.

Dr. R. B. Durnin, of Great Falls, Mont., was married, July 24th, to Miss Zeta Hill, of Newburg, N. D.

Dr. J. F. Shefcik, of Minneapolis, has returned from a six weeks' trip to Vienna and the Continent.

Dr. A. E. Smith, of Minneapolis, has left for an extended stay in Germany, where he will do post-graduate work.

The Gary Commercial Club, Gary, S. D., has been successful in the movement to establish a hospital in that place.

Ottertail County is to have a hospital, built in accordance with the latest approved designs. The building will cost $10,000.

Dr. J. P. Guilfoyle, of Arlington, Ill., has purchased the practice of Dr. R. M. Gunderson, who will take up practice in Minneapolis.

Dr. C. H. Keene, of Minneapolis, supervisor of hygiene, has gone to the Coast to study physical-education work in the schools there.

Dr. Thomas Morrow, of Minneapolis, an eye, ear, nose, and throat specialist, has formed a partnership with Dr. F. H. Powers of Marshall.

Dr. V. E. Winston, a graduate of the College of Physicians and Surgeons, who has been practicing at Hermosa, S. D., has been made home physician of Hill Institute at Rapid City.

FOR SALE

So. Dak. Co. Seat town; $3,000.00 practice; drugs and outfit at invoice, about $500. Large territory. No opposition. Address, M. L., care this office.

PHYSICIAN WANTED

Physician wanted for good location in thriving North Dakota town of 400. Practice paying $3,000 per year, good train service, good roads, and good community of Canadian-Americans and Germans; nearest doctor twelve miles. Will also sell drug stock. Address, Erie Drug Co., Erie, N. D.

PRACTICE FOR SALE

$500.00 cash takes one of the very best medicine and surgery practices in one of the best towns in state; big monthly railroad pay roll, from $25,0000 to $30,000. Excellent opportunity to do surgery; with best of hospital equipment. Reasons for selling, am going east. Don't answer unless you have the cash. Address, H. B., care of this office.

GOOD OFFICE FOR RENT

Good opening for a live physician on the best car line in the city; no doctor's office on this corner; no practice to purchase. Well-settled community and growing rapidly. Location must be taken at once as rooms suitable for offices are across street from drug store. Address, F. B., this office.

POSITION WANTED

Position as assistant to practitioner in Minneapolis with large practice in Obstetrics or diseases of children. Three years general practice; willing worker; good address; married; graduate No. A1 school. References and personal interview. Address W. M., care of this office.

PRACTICE FOR SALE

My general practice in Minneapolis, worth about $5,000, goes to the purchaser of my residence, a 9-room modern house and large barn in good neighborhood. Price, $5,000. This is an exceptional opportunity for anyone wishing to get a start in city or a city man wishing to increase his practice. I am going to specialize. Address E. M., care of this office.

In TYPHOID FEVER

A Rex Sanitary Closet (Formerly Red Cross)

the first consideration of the attending physician is the minimizing of the possibility of the spread of the infection. Therefore,

One Rex Sanitary Closet

should be his first precaution. Spread of the disease can result from exposed evacuations only,—an impossible condition where a Rex Sanitary Closet and Rex Co.'s Special Disinfectant (Guaranteed coefficient 16) are used, the system insuring prompt, thorough and permanent sterilization of the excreta.

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PUBLISHER'S DEPARTMENT

STORM BINDER.

Dr. Katherine L. Storm, who several years ago patented the Storm Binder, has recently obtained patents in England and Canada on this supporter, also another patent in the United States for a high belt for floating kidney-ptosis, etc., with a minimum of pressure, heat, and weight across the back of the patient.

JORDAN SULPHUR SPRINGS AND MUD-BATH SANITARIUM, JORDAN, MINN.

The new sanitarium which has just been opened at Jordan, Minn., is equipped with every modern convenience that money can purchase. The location of the building is ideal, all the scenery being very attractive and restful. The company controls many sulphur and iron springs as well as sulphur mud on its property, which they are using very successfully in the treatment of various diseases, such as rheumatism in all its forms, kidney, stomach, and liver troubles, nervous diseases, etc., etc. Dr. J. B. White, a graduate of the Minnesota University, and well known through southern Minnesota, where he has practiced for the past twenty years, will be in charge of the medical department. Full information will be gladly given on application to the manager, J. J. Leonard.

POULTICES SHOULD BE STERILE

Prof. George Howard Hoxie, of the University of Kansas, in his most excellent book on "Symptomatic and Regional Therapeutics," states under the heading of localized inflammation that "the danger of infection should ever be in mind in applying a poultice, for the maceration incident to the poultice favors infection, even if in ordinary circumstances one might consider the area germ proof."

Again he refers, under the chapter on pain, to the dangers from using dirty poultices, and adds that skin affections have been added to the ordinary disorder when bread-and-milk or linseed poultices have been used to relieve pain.

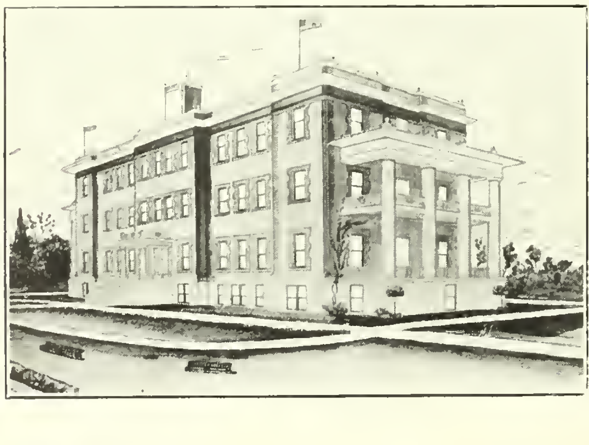
It is thus noted how important then, it is, in the employment of a poultice for the relief of pain and inflammation, that a sterile and trustworthy product be applied. Inasmuch as poultices are a means of producing hyperemia by the use of heat, and in so far as they do this better than by other means, it is interesting to observe that, in the belief of Prof. Hoxie, "the clay poultices, known best in the form of antiphlogistine, are the best to employ, as they are sterile and clean."

Antiphlogistine affords not only a safe but clean method of utilizing the advantages of hot, moist heat in the treatment of pain or inflammatory conditions. It maintains heat in contact with the part for hours and its adaptability is only secondary to its therapeutic value.

HIGH-POTENCY ANTITOXIN

A noticeable preference for concentrated antidiphtheric serum (globulin), as compared with the older or "regular" form of diphtheria antitoxin, has manifested itself among the medical fraternity. "High potency, small bulk," appears to be the order of the day. A good index to the tendency in this direction may be found in the offerings of the manufacturers, who, as a matter of course, are promptly responsive to each new demand of the profession. For confirmation of the belief that the concentrated product is now in the ascendancy, one has but to turn to the announcement of Parke, Davis & Co., in the current number of this journal, "Antitoxin That Justifies Your Confidence." Here one finds prominently featured the concentrated antidiphtheric serum (or globulin). It is interesting to note in this connection that a wider range of dosage than formerly is now offered—from 500 to 10,000 antitoxic units—the larger doses, of course, being provided for severe, late or other exceptional cases. And herein, at least, is one undisputed point in favor of the concentrated antitoxin: when a large dose is needed, it can be administered in this form without difficulty and with little danger of disturbance, owing to the comparative smallness of its bulk.

Some physicians, it may be noted, are under a misapprehension as to the nature of the concentrated antidiphtheric serum (globulin), assuming that it is widely different from the product which they have known for years as antidiphtheric serum. The idea is wholly erroneous. Concentrated antidiphtheric serum (globulin) is the regular product, precipitated and purified, from which most of the serum constituents have been eliminated except those bearing the antitoxin. It is in no sense inferior to the original serum—on the contrary, as previously noted, it possesses the advantage of lesser bulk.



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TRANSACTIONS OF THE MINNESOTA STATE MEDICAL ASSOCIATION

FORTY-FOURTH ANNUAL MEETING

1912

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Proceedings
OF
The House of Delegates

FIRST SESSION, TUESDAY, AUGUST 13, 1912

The House of Delegates met in the Sun Parlor of the Spalding Hotel, Duluth, and was called to order by the President, Dr. Haldor Sneve, of St. Paul, at 2:25 P. M.

The President stated that the first thing in the order of business was the appointment of a committee on credentials, and he appointed Dr. W. L. Beebe, St. Cloud, and Dr. H. F. McGaughey, Winona.

Dr. Beebe, on behalf of the Committee, submitted the following report:

REPORT OF THE COMMITTEE ON CREDENTIALS

The following are duly accredited Delegates entitled to seats in the House of Delegates first day of meeting:

DELEGATES	SOCIETY
Graves, C.	Aitkin County
Liedloff, A. G.	Blue Earth County
Jones, D. N.	Camp Release District
Clay, E. M.	Camp Release District
Conley, H. E.	Goodhue County
Jones, W. A.	Hennepin County
Nippert, L. A.	Hennepin County
Crume, G. P.	Hennepin County
Geist, Emil D.	Hennepin County
Crafts, Leo M.	Hennepin County
Quinby, T. F.	Hennepin County
Chowning, Wm. (Alternate)	Hennepin County
Maitland, D. P.	Jackson County
Sheppard, P. E.	McLeod County
Armstrong, J. M.	Ramsey County
Ball, Chas. R.	Ramsey County
Freeman, Chas. D.	Ramsey County
Cook, Paul B. (Alternate)	Ramsey County
Plondke, Fredk. J. (Alternate)	Ramsey County
Beebe, W. L.	Stearns-Benton County
Schneider, H. A. (Alternate)	Scott-Carver County
Weiser, F. R. (Alternate)	Southwestern
Andrist, J. W.	Steele County
Graham, Robt. (Alternate)	St. Louis County
Weston, J. B.	St. Louis County
McComb, C. F.	St. Louis County
Kenyon, Paul	Upper Mississippi
Thompson, Albert	Watonwan County
McGaughey, H. F. (Alternate)	Winona County

Delegates and Alternates present on the last day of meeting:

Robertson, J. W. (Alternate)	Meeker County
Olson, S. H.	Central Minnesota
Valentine, W. H.	Lyon-Lincoln County
Barton, E. R. (Alternate)	Clay-Becker County
Judd, E. S.	Olmsted County

It was moved and carried that the report be accepted, and that the House of Delegates proceed with the regular order of business.

The President: The first order of business is the reading of the minutes of last year.

The Secretary: Mr. President: These minutes have been published in the official journal. It would take considerable time to read them; however, if it is the sense of the House of Delegates that these minutes be read, I will read them.

It was moved and carried that the reading of the minutes be dispensed with, and that they be approved as printed.

The President: The next order is the report of the Secretary.

The Secretary presented his report as follows:

THE SECRETARY'S REPORT

THOS. McDAVITT, M. D.

The Secretary has to report 1,397 on the rolls of the Association.

The defense feature of the organization has been successful. The cost for the year has been $435.58, besides the $110.35 ordered paid in the Penhall case by the last House of Delegates.

The last House of Delegates instructed the Council to make arrangements as it saw proper to print the proceedings for the ensuing year. This decision was delegated by the Council to the Publication Committee. At a meeting in December they unanimously agreed to continuing the arrangement already in effect with the Lancet Publishing Co. and to permit the name THE JOURNAL-LANCET as the name of the publication. It has cost $1,326.66 for the publication for the past year.

The expense of medical defense in many states has been out of all proportion to the receipts. As long as we live up strictly to the letter of the By-Laws covering this feature we shall have little trouble in carrying the expense with the present dues. The number of cases considered has been eleven, two or three of which are still pending.

The President: You have heard the report of the Secretary. What do you wish to do with it?

It was moved and carried that the report be accepted as read.

The President: The next order is the report of the Treasurer, Dr. Hill.

The Treasurer presented his report as follows:

TREASURER'S REPORT

Dr. R. J. Hill, Treasurer, in account with the Minnesota State Medical Association.

1911.		Cr.	
Oct.	4	W. A. Jones, President Lancet Co.	$111.00
	4	Clara Targeson, Stenographer to Secretary	20.00
	9	A. G. Long, stenographer State Meeting	75.00
	10	W. L. Beebe, Ex-Legislative Committee	43.00
	10	C. E. Dampier, Ex-Councilor	30.57
	10	A. E. Spalding, Councilor	15.00
	10	J. G. Millspaugh, Councilor	6.00
	10	H. M. Workman, Councilor	15.00

1911.		Cr.	
	10	F. W. Penhall, Morton, Minn., for expenses incurred in malpractice suit	110.35
	10	Kenneth Fullerton, registry clerk, Annual Meeting	10.00
	10	N. W. Stamp Works, badges Annual Meeting	37.50
	10	Dr. W. S. Fullerton, material for x-ray stands	1.45
	10	St. Paul Building Co., material for x-ray stands	15.95
	10	Brown, Tracy & Sperry Co., material for x-ray stands	2.00
	10	Nimis & Nimis, material for x-ray stands	22.60
	10	E. B. Meyrowitz, material for x-ray stands	10.62
	10	Dr. J. M. Armstrong, cash expended for x-ray stands	3.15
	19	Thos. McDavitt, Secretary, sundry expense of office	25.00
	25	Peters & Baly, 1 M. 2c stamped envelopes, 1 M. note heads	26.85
	26	Emil Geist, Ex-Program Committee Annual Meeting, items on back of voucher	212.00
Nov.	2	Journal State Medical Association, 1,800 Programs	13.50
	2	Clara Targeson, stenographer to Secretary	20.00
	2	Wm. B. Joyce & Co., premium Treasurer's Bond	20.00
	2	W. A. Jones, President Lancet Co..	112.00
	14	A. G. Long, stenographer, report and transcript Annual Meeting	143.00
	14	Security National Bank, rental box, Treasurer	5.00
	14	E. B. Meyrowitz, rent for balopticon	2.00
	14	Roth Hotel rooms, H. R. Sayre, B. W. Sippy	7.00
	14	Thos. McDavitt, for investment order House of Delegates	1,000.00
	26	E. S. Durment, Attorney State Association case Dr. Havorka	160.98
	26	Thos. McDavitt, Premium on $1,000 N. P. Bond	7.60
Dec.	2	Clara Targeson, stenographer to Secretary	25.00
	2	W. A. Jones, President Lancet Co..	112.00
	2	Schuneman & Evans, 500 letterheads, Secretary	3.65
	29	W. A. Jones, President Lancet Co..	112.00
	29	Clara Targeson, stenographer to Secretary	20.00
1912.			
Feb.	5	Clara Targeson, stenographer to Secretary	25.00
	5	W. A. Jones, President Lancet Co..	112.00
Mar.	5	American Bonding Co., premium Secretary's bond	5.00
	5	W. A. Jones, President Lancet Co..	112.00
	5	Clara Targeson, stenographer to Secretary	20.00
	11	Thos. McDavitt, secretary, expense as Councilor	25.40
	11	Durment, Moore & Sanborn, attorneys, case Barton & Kirmse	10.00
	30	Clara Targeson, stenographer to Secretary	20.00
	30	W. A. Jones, President Lancet Co..	112.00
	30	Brown, Treacy & Sperry Co., merchandise, Secretary	3.25
	30	American Writing Machine Co., repairs on typewriter, Secretary	3.00
April	29	E. S. Durment, retainer, April 1, 1912, to April 1, 1913	100.00
May	1	W. H. Magie, Chairman of Program Committee	24.50
	1	Clara Targeson, stenographer to Secretary	20.00
	1	W. A. Jones, President Lancet Co..	112.00
	11	Peters & Baly, printing, Secretary..	3.00
	11	Greer Printing Co., Post-cards, Secretary	4.00
	19	Kennedy-Dawson Co., 1c envelopes, Secretary	19.50
	18	Durment, Moore & Sanborn, Attorneys, services in suit against Dr. C. D. Harrington	60.20
	25	Oliver Typewriter Co., repairs for Secretary	1.80
	30	American Medical Association, directory for Secretary	6.00
	30	Clara Targeson, stenographer to Secretary	25.00
	30	R. J. Hill, Treasurer, salary to June first	100.00
	30	Thos. McDavitt, Secretary, salary to June 1st	300.00
	30	W. A. Jones, President Lancet Co..	111.65
1912.		Cr.	
	31	Journal-Lancet, reprints of roster..	11.50
	31	E. S. Durment, attorney, expense in Franzen-Harrington case	12.50
	31	Luella Fiening, stenographer, Treasurer's report	2.50
			$3,918.57

Dr. R. J. Hill, Treasurer, in account with the Minnesota State Medical Association.

1911.		Dr.	
		Balance on hand, Oct. 1st, 1911	$4,124.03
Oct.	4	Central Minnesota Society	3.00
	4	Olmsted County Society	9.00
	4	St. Louis County Society	3.00
	4	Ramsey County Society	12.00
Nov.	2	Olmsted County Society	3.00
	14	Clay-Becker County Society	6.00
	14	McLeod County Society	3.00
	26	Winona County Society	6.00
Dec.	2	Hennepin County Society	3.00
	2	Stearns-Benton County Society	3.00
	29	Hennepin County Society	3.00
	29	Upper Mississippi Society	3.00
	29	Steele County Society	3.00
	29	Rice County Society	3.00
1912.			
Jan.	10	Aitkin County Society	3.00
	10	Scott-Carver County Society	6.00
	10	Hennepin County Society	3.00
	30	Olmsted County Society	3.00
Feb.	24	Ramsey County Society	54.00
	24	Hennepin County Society	6.00
	24	Blue Earth Valley Society	3.00
April	11	Ramsey County Society	381.00
	11	Red River Valley	78.75
	11	Lyon-Lincoln County Society	40.75
	11	Wabasha County Society	29.25
	11	Stearns-Benton County Society	81.00
	11	Steele County Society	27.00
	11	Southwestern Society	78.75
	11	Jackson County Society	20.25
	11	Brown-Redwood County Society	33.75
	11	Clay-Becker County Society	60.75
	11	Houston-Fillmore County Society	31.50
	11	Scott-Carver County Society	27.00
	11	Brown-Redwood County Society	3.00
	11	Central Minnesota Society	20.25
	11	Aitkin County Society	9.00
	11	Washington County Society	31.50
	11	Central Minnesota Society	2.25
	11	Rice County Society	49.50
	11	Watonwan County Society	13.50
	11	Chisago-Pine County Society	29.25
	11	Upper Mississippi Society	92.25
	11	Waseca County Society	27.00
	11	Goodhue County Society	42.75
	11	Central Minnesota Society	2.25
	11	Scott-Carver County Society	2.25
	11	Houston-Fillmore County Society	2.25
	11	Park Region Society	56.25
	11	McLeod County Society	27.00
	11	Blue Earth Valley Society	65.25
	11	Winona County Society	54.00
	11	Camp Release Society	105.75
	11	Blue Earth Valley Society	36.00
	11	Wright County Society	22.50
	11	Kandiyohi-Swift County Society	29.25
	11	West Central Society	51.75
	11	Wright County Society	2.25
	11	Olmsted County Society	69.75
	11	Mower County Society	27.00
	11	Hennepin County Society	758.25
	11	Rice County Society	2.25
	11	St. Louis County Society	243.00
	11	Meeker County Society	24.75
	11	Brown-Redwood County Society	6.75
	11	Ramsey County Society	4.50
	11	Upper Mississippi Society	4.50
	11	Blue Earth Valley Society	4.50
	29	Ramsey County Society	29.25
	29	Blue Earth Valley Society	4.50
	29	Dodge County Society	20.25
	29	Upper Mississippi Society	4.50
	29	Southwestern Society	2.25
	29	Nicollet-Le Sueur County Society	33.75
	29	Freeborn County Society	33.75
	29	Olmsted County Society	2.25
	29	Camp Release Society	4.50
May	10	Ramsey County Society	9.00
	10	Clay-Becker County Society	6.75
	10	Blue Earth Valley Society	2.25
	10	Hennepin County Society	4.50
	10	Olmsted County Society	4.50
	25	Hennepin County Society	6.75
	25	Ramsey County Society	6.75
	25	St. Louis County Society	11.25
	25	Red River Valley Society	4.50
	25	Park Region Society	2.25
	25	Wright County Society	2.25

1912.		Dr.	
	25	Nicollet-LeSueur County Society....	2.25
	25	McLeod County Society............	2.25
	31	Interest Coupons on N. P. Ry. Bonds	100.00
		Total receipts to June 1, 1912....	$7,377.28
		Total expenditures to June 1, 1912	$3,918.57
		Balance on hand, June 1, 1912....	$3,458.71

Dr. R. J. Hill, Treasurer, in account with the Minnesota State Medical Association, Supplementary Report.

1912.		Cr.	
		Total Expenditures to June 1, 1912..	$3,918.57
June	14	E. S. Durment, Attorney's fees, etc., case of Dr. A. M. Rathbun.......	71.90
July	5	W. A. Jones, President Lancet Co..	113.80
	5	Clara Targeson, stenographer to Secretary	20.00
Aug.	1	E. E. McLeod, Chairman Western Passenger Association	11.00
	1	Kennedy & Dawson, programs Annual Meeting	26.50
	1	Clara Targeson, stenographer to Secretary	25.00
	1	W. A. Jones, President Lancet Co..	114.80
			$4,301.57

Dr. R. J. Hill, Treasurer, in account with the Minnesota Medical Association. Supplementary Report.

1912.		Dr.	
		Total receipts to June 1st, 1912....	$7,377.28
June	14	Ramsey County Society............	11.25
	14	Mower County Society.............	6.75
	14	Olmsted County Society............	2.25
	14	Houston-Fillmore County Society..	2.25
	14	Waseca County Society............	2.25
July	5	Hennepin County Medical Society..	2.25
	5	Scott-Carver County Society........	6.75
	5	Stearns-Benton County Society....	2.25
	5	Ramsey County Society............	4.50
	5	Goodhue County Society............	2.25
	5	Brown-Redwood County Society....	2.25
Aug.	1	Wabasha County Society...........	2.25
	1	Goodhue County Society............	2.25
	1	Hennepin County Society..........	2.25
	1	Camp Release Society..............	2.25
	1	McLeod County Society............	4.50
	1	Chisago-Pine County Society.......	2.25
	1	St. Louis County Society............	15.75
	1	Central Minnesota Society..........	2.25
		Total receipts to Aug. 10, 1912...	$7,456.03
		Total expenditures to August 10, 1912	$4,301.57
		Balance on hand, Aug. 10, 1912...	$3,154.46

The President: You have heard the report of the Treasurer. What is your pleasure concerning it?

Dr. C. F. Quinby: I would like to know for what purpose or purposes the largest disbursements were made?

Dr. Hill: The largest single item has been for the JOURNAL. That, I think, has been the largest single disbursement.

The Secretary: Out of the disbursements, Mr. Chairman, there was a thousand dollars invested in four per cent bonds, and there is one item of $1,326 for the publication of the JOURNAL. There has been $435 for defense plus $110 paid out extra, which would make a total of $535; also $100 for the Treasurer, $300 for the Secretary, and some $212 voted for the program committee of last year. The bill of the stenographer for the Secretary's office at $5 a week amounts to about $250.

These are the largest single items I notice in the report. The printing of the programs and everything of that kind are itemized, so that they can be seen when the report is published.

It was moved and carried that the report be accepted as presented and placed on file.

Dr. H. M. Workman: Before final adjournment, the Council would like to have some instructions with regard to investing the surplus on hand. Of the $3,000 we have on hand, we are not ready to say how much we want to invest.

On behalf of the Council, I wish to state that Dr. F. W. Penhall, in addition to the $110.35 that the House of Delegates allowed him last year, presents a bill of $635, or thereabouts. The Council voted that this sum be not allowed, because it is not in compliance with the By-Laws of the Association. This refers to the matter of malpractice.

The President: You have heard the report of the Council. What is your pleasure regarding it?

Dr. D. N. Jones: As this opens up the Penhall matter, I would like to say a few words in regard to this case. I presume there are many delegates here who are not familiar with the particulars of this case.

Dr. Penhall, a few years ago, was sued for malpractice in a case of fracture, which turned out later on to this effect, that there were no grounds for the suit. But there was a continuance of it, and in the first action that was brought the Association gave its assistance, but the case did not come to trial. It was finally dismissed by the court. Later on the case was taken up again by a new set of attorneys in Minneapolis and was brought to trial, and where a mistake seems to have been made was that when the second action was brought, which was practically the same case, Dr. Penhall failed to notify the Secretary of this Association of that fact, and he had another matter in view which he thought would probably work out better, and it was this, that in the defense of this case he thought he could do better by engaging local counsel in his own county, and the same counsel had been retained in the former case with the exception of the attorney furnished by the Association. The case was tried, and he won it. He was put to considerable expense in his defense of the case, and it is too bad if we cannot in some way come to his rescue. Dr. Penhall, as many of you know, is one of the reputable physicians of this state. He has been engaged in active practice in that county for twenty-two years, or more, and is perfectly ethical. He is a man that does a great deal of work and does very good work. But that, of course, is not the question involved, but the question involved is whether or not this Association shall come to his relief in the way of helping to pay his expenses in this suit. The question is simply one of neglect on his part in not notifying the Secretary and giving him a chance to engage counsel furnished at the expense of the Association. One of his reasons for not doing this was, he had learned from previous experience in the same case that there was a great deal of prejudice in Renville County, due to the fact that certain physicians in this state were bound together as an association and had some organization in the form of a trust to defend each other, and that very idea alone seemed to prejudice a good many people throughout that county in regard to Dr. Penhall's case. While Dr. Penhall is a strong man personally throughout his county, he had this feature to contend with, and for that reason he did not call upon the State Association to furnish counsel. He engaged local counsel, the same counsel he had engaged and fought the case locally. He was put to considerable expense, and, happily, physicians rallied to his support, and he won the case.

The doctor is not only one of the ablest men in the state, but he is a man who has been unfortunate in that he has had a great deal of sickness in his family and has not been well himself a good deal of the time. He also sustained a fracture which laid him up a good while. This case, in addition to the pecuniary expenses and worry, has been a source of a good deal of other expense and worry to him. He went about amongst us physicians in different places to hunt up evidence to help him in this matter, and, on the whole, the doctor has been put to a great deal of annoyance. Personally, I am proud of the fight he made and that he was thoroughly vindicated in the end. It was decided that there was no cause for action, and he thus won the suit. If this Association can, in any way, remunerate him in part, if not for all of his expenses, it would be the grateful thing for us to do. I have here in my possession a letter written by Dr. Penhall to the Secretary in regard to this matter, and if the House of Delegates wants more information and detail I would like to have the Secretary read the letter, but I have given you the substance of the case.

Dr. F. A. Knights: I am as sorry for Dr. Penhall as anybody else, and if the House of Delegates wants to pass the hat, I do not know but what he would find something in it when we got through; but so far as the paying of this bill for legal defense is concerned, it would be an extremely dangerous precedent for the House of Delegates to establish. In the first place, this malpractice case occurred at a time prior to the adoption of our medical defense feature, and it was only as a "good-fellow" action of the House of Delegates that we ever paid a cent in the matter. We were not bound to pay anything in this case at all, but Dr. Penhall had presented a claim for $113, or something of that sort, and the House ordered it paid. Then the case being brought up again, as the Secretary will tell us, after a little while, neither the Secretary nor any other official of the Association was notified that the case was on at all. Our By-Laws prescribe the way by which this matter shall be made known. No notice was given to anybody that this case was on, or that any expense was being incurred, and nobody had any authority for incurring any expense, and the bill presented for legal advice and services is more by a couple of hundred dollars than for defending eight or ten other cases of a similar nature. This fee of $500 is away out of proportion, nearly ten times as much as it would have cost the Association to handle this matter if we had done it by our own attorney. Not a single provision of the By-Laws was observed in this defense. Furthermore, I think, when the letters are read, it will be found that this claim for legal service is more of a bluff on the part of the attorney than a real claim on the part of the doctor. Furthermore, the bill presented here does not cover all the expenses of the case by any means. Here is an item of $500 for attorney's fees, $100 for other expenses, leaving out entirely the services of expert witnesses, which, it is recommended, we pay, and which will amount to two or three hundred dollars. We simply cannot do this kind of thing if we are going to maintain any defense feature in this Association at all. Two or three suits of this kind a year would simply dissipate all our funds, and we cannot allow anybody to begin suit without any notification or incur any sort of expense he feels like doing and present a bill for the whole thing to this Association. Before we get through, I want to ask the Secretary to read to the House of Delegates the papers in the case so that you can form your own opinion.

The President: It would throw some light on the subject if our By-Laws covering the medical defense feature were read by the Secretary, or, at least, certain portions referring to this case.

The Secretary: The medical defense feature of our Association is contained in Chapter 11 of the By-Laws. It reads as follows:

Section 1. Active members of the Minnesota State Medical Association who have paid all dues, assessments, and other charges assessed or levied by the Minnesota State Medical Association, shall be entitled, on conditions hereinafter specified, to receive, without personal expense therefor, legal advice and court service of an attorney or attorneys at law in the employ of the Association, witness fees for the purpose of conducting their defense in any court in this state, when they are accused of malpractice or of illegal transactions in connection with the commitment of persons to institutions for the insane.

Sec. 2. It shall be the duty of the Council, severally or collectively, to investigate all claims of malpractice against members, to adjust such claims in accordance with equity where possible, and, if in their judgment an adjustment is impossible or the claim is unjust, or the damage sought is excessive, to tender such help, aid, and counsel as they may see fit. They shall be empowered to contract with a member of the bar of Minnesota as legal counsel of this Association.

Sec. 4. The legal services herein provided for shall be granted only on the following conditions:

First. Any active member desiring to apply for malpractice defense hereby provided, shall immediately, upon receipt thereof, send to the Secretary of the Minnesota State Medical Association any letter, process of court, or other evidence of threatened litigation in connection with such malpractice case.

Second. It shall be the duty of the Secretary to forthwith examine the financial records of the Minnesota State Medical Association, and if such member so applying is found to have paid all arrearages, dues, or other charges due the Minnesota State Medical Association for the year, he shall certify those facts to the Council of the Minnesota State Medical Association, and forthwith send to such Council the papers received from the applicant for defense, and such Secretary shall forthwith return to the applicant, if he shall find that the applicant has paid all arrearages due the Minnesota State Medical Association, a formal application for defense containing authority for the said Association through its attorney to defend the action and granting to the Association and its attorney sole power to conduct the defense thereof, and agreeing not to compromise or settle said claim for damages for said alleged malpractice without the consent of the Minnesota State Medical Association or its attorney. The said applicant shall furnish and return to the Secretary with his application duly executed a full, accurate, and complete history of his treatment of the case out of which the alleged malpractice arose, giving dates, names of witnesses, nurses, and other attendants, all of which information shall, upon its receipt by him, be forwarded by the Secretary of the Minnesota State Medical Association to the Council of the Association.

Third. If, on the other hand, the Secretary finds that any member so applying has not paid all arrearages as herein specified, then and in that case he shall return at once to the applicant all papers or memoranda received by him from said applicant, together with a statement that he is not entitled to defense and the reason therefor.

Fourth. It is further understood between each and every member of the Minnesota State Medical Association that under no condition or contingency will the Minnesota State Medical Association pay any sums awarded in settlement, compromise, or by any verdict against any member sued for alleged malpractice, and each member applying for the services of the attorney of the Association in any malpractice case, shall agree not to obligate in any manner the Minnesota State Medical Association or any persons connected therewith to the payment of any sums whatsoever for any purpose.

Fifth. The Minnesota State Medical Association will assume the defense in a suit for malpractice against a member only when the cause for the alleged malpractice occurred subsequent to the date on which the member joined the Association.

Sixth. This chapter shall be enforced on and after April 1, 1910, and the year shall end on the last day of March of each year.

The Secretary: That has been changed to December 31st of each and every year. The intent of that law, as we all know who are cognizant of the facts or who at the time were instrumental in getting this bill passed, was to cover only malpractice or alleged malpractice that occurred after the passage of this law. Necessarily, it was not intended that that law should be retroactive, that is, should take any cases of malpractice that occurred previous to the time we had the medical defense feature, which only seems reasonable.

As to the facts in this case: This medical feature went into operation April 1, 1910. Along about October or November, 1910, Dr. Penhall with his counsel appeared personally in the office of the Secretary demanding medical defense. In presenting their case they stated the alleged malpractice had occurred either in the fall of 1909 or 1908—I have forgotten the exact time. If it was in 1909 it was six months previous to the time we had the medical defense feature. If it was 1908, it was 18 months previous.

On looking the matter over as an executive officer I gave it as my opinion that the case was not one for our medical defense, as they were barred by the time limit. The counsel objected to my judgment in the matter seriously, and I told him he could go over and consult our attorney, Mr. Thygeson. Mr. Thygeson got a report of the case and did not take the case as a part of the medical defense feature of this Association, but he had given them advice as to how they should probably act. He never sent a bill for anything he did so far as this case was concerned, avoiding absolutely making any legal liability to this Association or for this Association.

I heard nothing further from the case, knew nothing about any trial taking place over in Minneapolis, nor that the case for the time being had been stopped; neither did I know anything about the re-starting of the case. My first knowledge that this case had gone through to an issue was the fact that on June 14th I received the following communication:

Morton, Minn., May 24th, 1912.

Mr. Thos. McDavitt,
Secretary Minnesota State Medical Association,
St. Paul, Minn.

Dear Sir:

You will perhaps remember that in October, 1910, one Robert H. Higgins, of Minneapolis, commenced an action for $25,000.00 in the District Court of Hennepin County against me alleging malpractice on my part in reducing a compound fracture of his right leg. At the time the matter was brought to your attention the papers and facts were presented to Mr. N. M. Thygeson, attorney for your association, who assisted in preparing the answer in the case. The action was then transferred to Renville County and continued over the November, 1910, term of said Court. At the May, 1911, term of Court the case was dismissed on account of the failure of Higgins and his attorney, Mr. Frank L. Morrison, of Minneapolis, to appear and prosecute the same. I paid out in expenses preparing for the trial and attorney's fees the sum of $110.35 which amount our Association very kindly reimbursed me after the October, 1911, meeting.

The case was commenced the second time in Hennepin County and Messrs. Spooner, Laybourn and Lucas, attorneys of Minneapolis, Minnesota, appeared as attorneys for Mr. Higgins. A complaint practically the same as in the first action was served and the case was again transferred to Renville County and brought on for trial at Olivia, Minnesota, at the May, 1912, term of Court. The case was called May 14th and the trial was in progress until the forenoon of May 16th when it was submitted to the jury, which returned a verdict in my favor which I think terminates the litigation.

On the trial the plaintiff was represented by Messrs. Spooner, Laybourn and Lucas and I was represented by Mr. John A. Dalzell, of Morton, Minn., and Messrs. Daly and Barnard, of Renville, Minn. In preparing for the defense I paid out for witness fees, hotel bills and traveling expenses the sum of $131.02 as per itemized statement hereto attached. This does not include the expert witness fees or any item for attorney's fees.

The following expert witnesses were sworn at the trial: Dr. M. J. Lynch, Minneapolis, Minn.; Dr. C. A. Donaldson, Minneapolis, Minn.; Dr. J. W. Macdonald, Minneapolis, Minn.; Dr. C. E. Rogers, Montevideo, Minn.; Dr. E. M. Clay, Renville, Minn.

While I consider the case entirely without merit, and a wanton attempt to injure my reputation as a physician and surgeon, it required careful preparation of both the law and facts and the attendance of a number of witnesses, including the experts above mentioned, to show up the falsity of plaintiff's claim.

I have been a member of the Minnesota State Medical Association for many years, and I assume that one of the purposes of the Association is to protect the members and save them from expense in malicious attacks of this kind.

My attorneys have presented me with a bill of $500.00 for their services, which I consider just and proper. They put in a great deal of time preparing the case for trial, made a number of trips to different points, particularly to Minneapolis, where the experts were consulted prior to the trial, which amount I feel in justice bound to pay.

The plaintiff is financially irresponsible and the judgments against him for costs which will ultimately be entered are, and will be, wholly uncollectible. No unnecessary expenses were incurred by me or my attorneys and the result obtained certainly justifies the expenses and attorney fees hereinbefore mentioned.

I submit this to you and ask you to kindly act promptly in the matter and remit to me the following items: $131.02 disbursements and $500.00 attorney's fees and also take the matter up with Dr. Lynch, Dr. Donaldson, Dr. Macdonald, Dr. Rogers, and Dr. Clay with a view of properly paying them for their services.

As I have been under a large expense lately owing to sickness in my family, which necessitated having one of my children in the hospital for several months, I am at present in need of your taking this matter up very promptly and trust you will do so and remit to me the amount, which will be appreciated.

Regretting very much the necessity of presenting this communication to you, I am,

Very truly yours,
(Signed) F. W. Penhall.

The executive office know nothing about this until June 14th, one month after the litigation had taken place. Attached to the communication is an itemized statement of account, and there is also attached a sworn statement of the doctors who were present. I replied to Dr. Penhall June 14, 1912, the same day his communication was received. My reply was as follows:

St. Paul, Minn., June 14th, 1912.

Dr. F. W. Penhall,
Morton, Minn.

My Dear Doctor:

This additional bill for expenses in your suit, as I see by your letter, occurred in a re-trial in May, 1912. I am at a loss to understand why this office was not informed of the matter so that our attorney could take the matter up in the proper manner. I am sending you a copy of the By-Laws covering this point. Necessarily, we cannot have suits all over the state taken up in this manner and tried without our knowledge. We have an attorney employed to attend our malpractice suits, and if we are expected to assume expenses it is necessary for our members to fulfill in every respect the conditons imposed by our By-Laws. I have no authority whatever to pay bills incurred in this manner, and it will be necessary if it is paid to be authorized by the House of Delegates.

Very truly yours,
(Signed) Thos. McDavitt.

The Secretary: In reply, I received the following letter:

Morton, Minn., June 18th, 1912.

Mr. Thos. McDavitt, M. D.,
Secretary Minnesota State Medical Association,
St. Paul, Minn.

Dear Sir:

I have your letter of June 14th indicating that my failure to strictly comply with the By-Laws of our Association precludes me from obtaining the benefits of the medical defense assumed by the Association about two years ago. It is not my purpose to enter into a discussion with you over the correctness of your position. I therefore ask you to submit the facts to the House of Delegates.

You will not forget in this connection that at the time the first action was commenced, in October, 1910, I called on you at your office with all of the papers and facts in the case and requested that the Association take charge of my defense. This was certainly *strict compliance* with our By-Laws. You refused my request at that time. I then went with the facts and papers to Mr. N. M. Thygeson, the then attorney of our Association, who advised me in the matter and prepared my answer in the case. Mr. Thygeson also advised that local counsel in Renville County try or assist in the trial of the case, and I retained John A. Dalzell, of Morton, Minn., and Daly & Barnard, of Renville, Minn., for that purpose. These gentlemen prepared themselves upon the law and facts of the case and were fully prepared to try the case had plaintiff prosecuted the same at the May, 1911, term of Court.

When our House of Delegates met in October, 1911, you kindly placed the matter before them, and my attorney's fees and expenses were paid by our Association.

After the second action was commenced it would at most have been an idle ceremony to go before yourself or the House of Delegates with the papers and facts which had been once submitted.

I did not feel that it would be just to my attorneys heretofore employed as above stated and familiar with the facts and law in the case to go elsewhere for counsel. The old adage that it is poor policy to swap horses in the middle of the stream was particularly applicable inasmuch as I considered my attorneys competent and skilful, familiar with local conditions, and, as above stated, equipped with the law and facts in the case and thereby in a position to handle the matter with less cost and expense than would result to our Association by procuring other counsel.

It also occurred to me that knowledge of the fact that our Association was back of my defense would undoubtedly reach the jury and possibly influence them in plaintiff's favor while they would be disinclined to render a verdict if it were to be my personal loss. The fact of insurance against loss certainly does not help where a plaintiff is poor, as in this case, and the jury knows that some one other than the defendant is eventually to pay the bill. My professional skill and ability were at stake, and I took no chances. If this was error on my part to such an extent that a technical non-compliance with the By-Laws of our Association can now be invoked to deprive me of the right to the medical defense assumed by the Association it was error without prejudice to the Association and I at all times acted in the best of good faith. I was vitally interested in the matter.

This wanton and groundless attack upon my professional ability after twenty-two years of active practice in this county at my age in life required on my part serious and careful attention and I did what my best judgment dictated and the question of dollars and cents was not the whole thing. I placed myself in the hands of men I had known for years with the approval and suggestion of the then attorney for our Association.

It is up to the House of Delegates, after a consideration of all the facts, to exercise a sound discretion in this matter, which I know they will do.

The fact that eminent counsel from the city of Minneapolis were employed to try the case against me and that Dr. W. S. Fullerton, secretary of the State Board of Medical Examiners and Drs. C. D. Whipple and H. H. Sellers, of St. Paul, saw fit to travel 100 miles from the Twin Cities to testify against me and thereby encourage the plaintiff in his malicious and groundless attack upon my professional standing and skill and thereby aid him in his futile attempt to reach my hard-earned dollars, certainly justified the expenditure of every dollar I paid out for the attendance of the experts who so kindly testified for me, and I feel that our Association can do nothing better by way of protection to our profession than to pay these experts their fees as such and re-imburse me for my expenses and attorney's fees.

Please submit this and all my other communications and papers to the House of Delegates.

Regretting the necessity of this lengthy communication, I am,

Yours truly,
(Signed) F. W. Penhall.

Dr. E. M. Clay: The reason that this case did not come to trial a second time that Dr. Penhall was sued, was that the plaintiff and his attorneys did not appear and the case was dismissed, for the simple reason that the plaintiff was unable, before he went to trial, to get any physicians to go into court to testify against Dr. Penhall for him. If there are doctors who will travel some distance for the purpose of testifying against such a reputable man as Dr. Penhall, I think it is time the Association as a body should take some action in regard to that.

Dr. F. A. Knights: I submit there are two reasons why it is impossible for this Association under its By-Laws to pay that bill. The first reason is that the malpractice suit occurred at a time prior to the adoption of the medical defense feature. Those who were present at the Winona meeting will remember that we discussed the futility of making this thing retroactive and decided it would be impossible to introduce any such feature. Secondly, it is impossible for us to pay this bill because the By-Laws were not complied with in any way. The Association was not consulted. The fee, as the Secretary will tell us.

if our attorney had tried the case, might have cost us $100.

I submit, further, that the tone and wording of these letters show plainly that the letters did not come directly from the doctor himself, but from his attorney who is making a bluff to collect a fee from the Association which he could not collect from the doctor himself.

Dr. Workman: I move that the House of Delegates approve the action of the Council in refusing to consider this claim.

The motion was seconded.

Dr. L. A. Nippert: I would like to ask whether the action of the Council was unanimous.

The Secretary: It was.

Motion put and carried.

Dr. Jones: I now move that the Council investigate this matter from the evidence furnished by the Camp Relief District Medical Society.

Motion seconded and carried.

The President: The next in order is the report of standing committees, and the first committee to report is the one on scientific work.

Dr. J. M. Armstrong: I have no written report to make. The work of this committee was to furnish a scientific program for the meeting. You have all received by mail copies of the program. There have been criticisms in the past on the way the program is made up. Some think the country doctors do not receive as many positions on the program as they might. This year the committee acted differently from what the committees have done before, in that we sent out notices to members belonging to the Association, asking them if they cared to read papers. We received 160 replies. The committee threw out all letters where no subject was stated, and in checking up the others it was found that a certain percentage of the letters came from Minneapolis and St. Paul and a certain percentage came from Rochester, and a certain percentage from the rest of the state. We determined to use that percentage in making up the program. In doing that we thought it would be fair to the country doctors. In doing it we found we were not shutting the country doctors out because of all the applications received from the country pretty nearly every subject was duplicated. Five different men wanted to read papers on one subject, and four different men wanted to read papers on another subject. We tried, under the circumstances, to get up a program which would be fair to every one. Positions on the program at the meeting were chosen by lot, so there should be no complaint on that score.

The President: You have heard the report. What disposition will you make of it?

The Secretary: It has been necessary to change the program in one or two respects. For instance, it has been found necessary to take the boat-ride on Wednesday night, and Dr. Clark will give his lecture on Thursday night.

It was moved that the report be accepted.

Motion seconded and carried.

The President: The next in order is the Report of the National Legislative Committee, Dr. W. L. Beebe, St. Cloud, Chairman.

Dr. Beebe presented the following report:

REPORT OF NATIONAL LEGISLATION COMMITTEE

The writer, as your delegate, attended the twelfth annual midwinter conference on legislation, held at Chicago, February 27, 1912. This year, for the first time, officers and members of state and municipal boards of health were invited to attend and participate. The attendance was unusually large and of greater interest and discussion than usual.

Mr. E. F. Ladd, State Commissioner of Foods and Drugs, for North Dakota, gave a very interesting paper on questions pertaining to food adulteration and proprietary remedies.

Dr. Cressy L. Wilbur, of the Bureau of Census, Washington, D. C., discussed the question of birth and death registration.

The discussion of railway sanitation, federal inspection of dairies, opened by our Dr. Bracken, and conservation of vision, were particularly interesting.

Dr. Pettit, superintendent of a tuberculosis sanatorium at Ottwaa, Illinois, had an especially entertaining paper on local and state organizations for the suppressing of tuberculosis.

Twenty-five state delegates made reports of their respective legislators' work, on medical matters during the preeding year. Your delegates reported for Minnesota, as follows:

Minnesota's last legislature contributed a very meager amount of medical legislation. It increased the appropriation for the State Board of Health. It amended the laws of 1907 on the subject of vital statistics, giving the State Board of Health a general supervision of the state system of registration of births and deaths, making the secretary of the Board the state registrar and administrating officer of the state in connection therewith. It passed an act permitting counties to appropriate money to prevent the spread of tuberculosis. The county board may appropriate money out of the general revenue fund for the purpose of paying for the services of visiting nurses or other necessary medical attention or advice in preventing the spread of tuberculosis, or for the purpose of disinfecting any room or place infected with tuberculosis.

Four counties have built, or are building, sanatoria for tuberculosis, and many of them are employing visiting nurses.

The best work of the profession along the lines of medical legislation was the defeating of a bill proposing to lower the standard of entrance requirements and of graduation from the medical department of our university. I regret to state that this bill was instigated by a member of the committee on legislation of the state medical society. It is unnecessary to state that the name of this individual no longer appears on the committee of state legislation, nor on the auxiliary committee of this organization.

(Signed) W. L. Beebe.

The President: You have heard the report of Dr. Beebe. What is your pleasure.

It was moved and carried that the report be accepted.

The President: The next order will be unfinished business, and this refers more particularly to the question of a medical journal and the publication of the proceedings of this Association, and so on.

Dr. J. M. Armstrong: I have a communication which I desire to read at this time.

Duluth, Minn., August 13, 1912.

To the House of Delegates of the Minnesota State Medical Association:

The Ramsey County Medical Society offers the *St. Paul Medical Journal* to the State Association as its official organ under the following conditions:

1. The journal to be called the *Minnesota Medical Journal* or the *Journal of the Minnesota State Medical Association,* or any name the Delegates of the state may direct.
2. The journal to be sent each member of the State Association for seventy-five cents per member per year.
3. The journal to publish the transactions of the House of Delegates and all papers presented by the editing and publishing committee of the State Association.
4. All copy sent to the journal for publication to be typewritten.
5. The House of Delegates of the State Association or whoever the House of Delegates may direct to name the editor of the journal.

(Signed) Delegates from the Ramsey County Medical Society, Charles P. Freeman, E. B. Cook, J. W. Armstrong, Charles R. Ball, F. J. Plondke.

The President: What will you do with this communication?

Dr. W. A. Jones made an oral offer for printing the proceedings in The Journal-Lancet for five years under the same contract heretofore existing.

Dr. Paul Kenyon: In order to bring this matter before the House of Delegates in the proper form, I move that the proper officers of the Association be empowered to renew the contract with The Journal-Lancet for a period of five years under the existing conditions.

Motion seconded by several delegates.

Dr. Charles R. Ball: This is a very important matter and one it seems to me we will have to settle for our Association at this meeting. Perhaps a little bit of history may be of interest in this connection, as I was a delegate at the meeting last year. In the meeting of the House of Delegates Dr. Jones made a proposition which on a fair vote of the House of Delegates was turned down, and the matter was left by a motion in the hands of the Publication Committee, this Committee finally deciding to accept the offer of the Lancet Publishing Company in the face of the vote of the House of Delegates. Knowing that this subject would come up, several weeks ago I wrote to the Secretary of the American Medical Association, asking him how many states published their own medical journals, and I received the following reply from him:

I have your letter of the 27th, and in reply to your first question I am sending you a list of the journals owned by state associations.

Your second question can only be answered by reference to the minutes of the various state societies which publish their own journals. We note that most of the state associations which once published their transactions in journal form continue to do so, and that in one or two instances where the association did for a time go back to the publication of annual transactions they have now again gone back to the journal form.

(Signed) Alexander R. Craig,
Secretary A. M. A.

(Dr. Ball submitted a list of twenty-five journals that were owned by state societies.)

Among these twenty-five states are Ohio, Indiana, Kansas, Iowa, Wisconsin, etc.

In order to find out the success of these journals, and what help they were to the state societies, I wrote to the editors of several of these journals. I have received the following communication from the editor of the Indiana State Medical Journal:

Fort Wayne, Ind., August 5, 1912.

Answering your letter of August 1st, I will say that as your question is rather general in its character, I will answer it in a general way affirmatively. I am very positive that the members of the Indiana State Medical Association would not go back to the old bound transactions of the association as a means of furnishing the proceedings of the association, and I am quite sure that they would not consider any proposition looking toward the use of a proprietary journal as an official organ.

I can quite understand, however, why some state association journals are worthless and do not fulfill their purpose. It is a case of bad management plus an editor with little ambition and enterprise. Doctors are usually poor business managers and the successful management of a journal requires something more than the ability to write editorials and show proper discrimination in the selection of material for publication.

If I can give you any information that will be of assistance, I shall be pleased to have you call upon me.

(Signed) ALBERT E. BULSON, JR.

Dr. Ball: It seems to me from the reports we have received from our sister state, there can be no question but what an official organ is beneficial and is a helpful thing to the state society, and that also the state society is a helpful thing to the official organ. When we consider what Wisconsin, Illinois, Ohio, and Iowa have done, I do not see why Minnesota with its splendid medical organization cannot do the same thing and produce a journal in which every single member of the state will take a personal interest and will make a journal that is representative of the state organization. A medical society needs method just as much as a church or a fraternal society or any other organization. We need a journal to voice the sentiments of the society on matters of public education, and on matters of medical affairs. We need an official organ to represent us, and I think one can be helpful to the other, and I believe this society can publish a journal that will be a credit to us and will be a help to us. Not only that, there is another important feature I wish to bring up, and that is, since the establishment of the Ramsey County Medical Society we have taken it upon ourselves to develop a reference library. We now have a great many volumes, and we also have a great many of the current medical periodicals, the chief ones published in this country and the foreign ones. These medical periodicals are bound at the end of each year. To illustrate the importance of this I will say that several months ago I was unfortunate enough to have a case of tetanus. I knew, in an indefinite way, that a saturated solution of magnesium sulphate was used in the treatment of tetanus. I also knew, in an indefinite way, that carbolic-acid treatment was used in the treatment of tetanus. I also know, in an indefinite way, that there was such a thing as tetanus antitoxin, but I had no details. I went to the library, which has been established by our journal, and there went over the current literature and the Index Medicus, and was able in the course of one or two hours to look up that entire subject and find out just exactly what had been published in regard to tetanus of any kind within the last two or three years. It made me master of the situation. What I did any member of the state society can do. It is not only important to have a journal which is published by medical men, to build up this library and to make a reference library, but to aid the members of the state in writing papers, in the reading up of cases, and to advance the state association in Minnesota. I think it is high time we have our own official organ.

Dr. J. M. Armstrong: I would like to add a few words to what Dr. Ball has said. We are offering the *St. Paul Medical Journal* to the State Association. The *St. Paul Medical Journal* is owned by the Ramsey County Medical Association, it is run by a medical man, and we are going to give this to the Association if they want it. That is what the offer means. We are saving the Association $300. If the Association should accept this offer it would be $787 if Dr. McDavitt's figures are correct, that is, saving $500 according to the figures in the Treasurer's report. The State Association is given the privilege of naming the editor and of running the journal, and all we want is a business management, so that we can put in the exchanges and books that come into the journal office into the library for the benefit of those who want to use them.

Dr. Leo M. Crafts: I would like to ask how large an amount the State Association pays now goes to the present journal.

The Secretary: One dollar per member per year.

Dr. Crafts: How much of the dues paid by each member of the society goes to the state?

The Secretary: Three dollars a year.

Dr. Crafts: It seems to me, if we are going to have a journal it should be owned by the Association and operated and controlled absolutely by it, or the members should be free to take or not take the journal, and the fee should be split in such a way that members may do without it if they so desire, and have that dollar cut out of their dues.

Dr. F. J. Plondke: I want to say this, that with the medical resources we have in Minneapolis, Duluth, and St. Paul, we ought to support a journal that belongs to the profession. As a comparison with the arrangement now, I believe, if I am correctly informed, that THE JOURNAL-LANCET represents both North and South Dakota, but the Ramsey County Medical Society now offers the *St. Paul Medical Journal* as a state journal, which would be a decided advantage. It would be the journal of the State Medical Association.

The argument will probably be put forth that the library will belong to the Ramsey County Medical Society, but it will be open to every professional man in the state, and if any one has an important subject to look up, instead of buying books, he can consult this library and get the information he desires. There are very few who realize how extensive that library is. We have both journals and bound volumes.

Dr. Charles R. Ball: I think this is a very important matter, and I therefore move to amend the motion that we vote by ballot on these two propositions in order that we may express our individual and untrammeled opinions on this subject.

The amendment was seconded by several.

Dr. H. E. Conley: Why should we take a journal with a string tied to it? The statement has been made that the journal of the Ramsey County Medical Society shall be known as the state journal and preserve its business management. It strikes me if we are going to have a state journal, the State Association wants to own it, and no county society should have any string on it. It is just the same when we get a state building, no county society will have a string on that building.

Dr. F. J. Plondke: I would like to ask the gentleman, as the matter stands now, whether it would not be better to have one county own the journal than to have a collection of counties do so? The journal we have now is a private corporation, so that the owners have quite as much a string attached to it, so far as the profession of the state is concerned.

Dr. Ball: This was true last year. Those of you who were present last year heard Dr. Jones make a proposition before the House of Delegates that the *Northwestern Lancet* would change its name to *The Journal of the Minnesota State Medical Association.* Afterwards, at the afternoon session of the Council he was compelled to state that Mr. Klein, who had a deciding voice, would not accept that, consequently he would have to withdraw his offer. That put it definitely in the hands of a layman, and the Ramsey County Medical Society is striving to see if there is any advantage to build up a reference library, a library which would be for the advantage of every single man who is a member of the State Association.

The President: Your chairman would like to say that in looking for some material for his address tomorrow morning, he found it necessary to go over some of the records of the society, and he found that the bound volumes of transactions of the Minnesota State Medical Association were immensely valuable in giving the history of the Association and of the matters that came up before it in the form which is easy of access and constitutes a permanent record.

Dr. Charles R. Ball: I rise to a point of order.

The President: State your point of order.

Dr. Ball: If you wish to argue the motion, please call the vice-president to the chair.

The President: I am not arguing the motion at all. I am making a statement. I want to say to the House of Delegates that the recommendation I am going to make tomorrow is that we discard the medical journal entirely, and that we publish our transactions in book form, as was formerly the custom.

Dr. Ball: I rise to a point of order. You are arguing the motion.

The President: The motion is to print the transactions in a medical journal, and I am not arguing that.

Dr. Ball: You must call the vice-president to the chair while you are doing it.

The President then called the vice-presidents and, none answering, asked Dr. McDavitt, the Secretary, to take the chair, which he did.

The President: Mr. Secretary: If any members of the Association have looked into the matter of official organs, such as Iowa, Wisconsin, Illinois, they will have found that there is no ideal for us to work up to. I find in looking up the history of the Association and the papers that have been presented before this body, they, with the discussions on them, represent always exactly our progress from year to year, and the volumes of transactions are immensely valuable and entertaining. I am going to recommend in my annual address that this Association print its proceedings in a bound volume each year, and have nothing to do with a medical journal or medical journals, which simply engender jealousy between rival cities and rival owners of journals, and which tend to disrupt the peaceful relations of the society. I wish you to consider that before voting upon the motion before the house.

President Sneve then took the chair, and put the amendment of Dr. Ball, which was carried.

Dr. H. M. Workman: I move that this whole matter be laid on the table until after the reading of the President's address.

Motion seconded by several.

The Secretary: There is a vote in progress.

The President: The chair rules that you must vote on the motion before the House.

Dr. W. L. Beebe: With all due respect to the chair, I do not believe he has properly and clearly stated Dr. Kenyon's motion.

The President: Will the stenographer please read Dr. Kenyon's motion to the House.

The stenographer read Dr. Kenyon's motion.

The President: I will appoint as tellers Dr. William Chowning and Dr. J. W. Andrist.

The President: There have been thirty-six ballots cast, of which nineteen are in the affirmative and sixteen in the negative, with one blank. I therefore declare the motion of Dr. Kenyon carried.

Dr. Jones: I am very much obliged for the confidence shown by the Association.

The President: Is there any further unfinished business?

The Secretary: There is nothing on my table.

The President: Any new business?

Dr. Leo M. Crafts: I presume a good many of the delegates feel as I do, and I hope that the motion I am about to make will meet with favor as a scientific advance. Some of the other states have already taken what I consider this step in advance. A number of laws have been passed in different states regarding the matter which I am about to bring before you.

Our criminal and insane and defective classes are increasing, and particularly the defective classes, in greater ratio than the population. At present our care of the insane and defectives, humanitarian and wise, is still fostering in its present state the further development of these classes, for we nurture them and take care of them, and they are often sent from the insane hospital only partly recovered, and they marry and procreate under mentally unfavorable conditions in the extreme. In practical eugenics, the proper step is to go further and provide sterilization for as large a proportion of this class as it is possible to accomplish. Legislatures have been difficult to persuade in this direction, although California, Indiana, Texas, and several other states, I believe, have taken steps in that direction.

I move that the standing Committee on Legislation be and is hereby instructed to have drawn, presented, and pushed in the legislature at the next session a bill providing for the sterilization of as large a class of male and female insane criminals and defectives as the legislature can be persuaded is needed.

Dr. T. F. Quinby: Away back in 1880, before our medical society, I had the temerity, born of youth at that time, because I was more an infant, and presented a paper embodying the views set forth by Dr. Crafts, and I did it in all sincerity because I believed in it at the time, recommending the emasculation of criminals, both male and female. One man at the time had the temerity to say he would adopt it and would be glad to carry it out, but I believe this thing is along the right line. I do not think any community should be burdened with these criminal classes, and I take great pleasure in seconding the motion of Dr. Crafts. I do not know whether it would be productive of much good because, as he intimates, legislatures are hard to convince. They do not view this matter from the same standpoint that we do.

The President: I wish to heartily second the motion of Dr. Crafts, but I have one amendment to make in regard to it. I do not believe we should include the criminal classes in the desired bill, because criminality is not inherited. It is acquired, so that there is no use in spaying anybody for the prevention of criminality except as an indirect cause of crime on account of defectiveness. I would limit it to the idiots and defective classes, leaving out the word "criminal," then it would be in line with the best modern thought of the day.

Dr. Crafts: I accept the amendment.

The amendment was seconded.

The President put the amendment and declared it carried.

The original motion, as amended, was then put and declared carried.

The President: Is there any further business to come before the house?

Dr. J. B. Weston: The St. Louis County Medical Society authorized me to bring before the House the consideration of the fifty-dollar reciprocity fee for those who are being examined and licensed in other states and to inquire into the fairness of the fee and whether it cannot be wisely reduced. There is not so much objection to the size of the fee, but there are many who believe that it is disproportionately large for the service the examining board gives. Again, it is the disposition of the money. Some states have a large fee, but they have put aside the compensation of the examiners as a surplus to be used in different ways for the advancement of the profession. One state uses the money for the prosecution of illegal practitioners, quacks, and so forth. In other states the money is used in various ways. This fifty-dollar fee works a hardship to men in Minnesota who at any time may move to a state where the reciprocity fee is smaller. In one of the states the law says that the fee shall equal that of any other state granting a license where they have a reciprocity fee. Other states that have simply an examining board, have made it a rule that if a man should go to North Dakota, where the reciprocity fee is twenty-five dollars, and subsequently comes to Minnesota they charge him fifty dollars. I understand there are only five states in the Union that charge fifty dollars; the majority of them charge twenty-five dollars and some ten dollars. We do not wish to build up a hedge against reputable men coming into the state, and we do not want to make it burdensome to the young man who has taken an interneship. For instance, one man spoke to me last week, saying that he went from Maryland to Illinois, where he paid fifty dollars before he could become an interne, and then he paid fifty dollars to Minnesota before he could practice.

I bring this matter before this body, hoping it will receive some discussion. I was instructed to bring the matter before the House of Delegates and to make this motion or to offer rather this resolution:

> Resolved, That the governor be requested to make his appointments to the State Board of Medical Examiners from lists furnished him from the various county medical societies.

Dr. F. A. Knights: Are remarks concerning the reciprocity fee in order?

The President: Yes.

Dr. Knights: I want to correct to some extent the idea advanced concerning the disposition of the reciprocity fee by the State Board of Medical Examiners, of which I am now a member. The remuneration consists of twenty dollars per diem for attending board meetings, one dollar per candidate for writing questions and examining papers, besides the traveling expenses of the Board. A number of examining boards, at ten dollars per license, will not pay any per diem whatever. The Secretary can give you more information on this phase of the subject than I can. I should say there are two reciprocity fees obtained to one by examination. There is no provision for the maintenance of the examining board except the fees that it receives. I do not think I am wrong when I say that a twenty-five dollar fee for reciprocity will not defray the expenses of the Board as they now are. If you can find a Board who will donate services, then you can get along with a less reciprocity fee, but you cannot do it without having a per diem of twenty dollars that is now paid to the Board. There is no splitting of the fees. The receipts are not sufficient to make a great balance, but a little balance. The expenses of the office were considerably lower when the state was smaller. A stenographer is a necessity, and the Secretary of the Board is paid a salary simply because it is impossible to get a secretary who would take the work without receiving a salary. There is no fat fee-splitting to be done here. It is a matter of judgment whether in reducing the fee to twenty-five dollars we should be able to carry on the work of the Board. Perhaps the Secretary can tell us more about that.

Dr. J. B. Weston: There is an express provision in some of the states where the receipts do not cover the expenses of the Examining Board the states pay them. We have to look towards an ideal condition of things, and so this suggestion comes from our county society. It is not hitting any man or any set of men, but the object is to see if we cannot have just as good an arrangement as any of the other states. No man need to serve without compensation. It seems to me there can be a law enacted by which the state can pay, out of its treasury, a man for his time. He should get it out of the state, and we should not get it out of the unfortunate man who is to come in here and pay fifty dollars.

Dr. F. R. Weiser: The Board at the present time is operating under two rulings, which went into effect June 1st, so that fifty dollars will not be sufficient to maintain the expenses of the Board. Under that ruling at the present time we have raised the standard of the Board, so that we actually require a two-year academic course to have been taken by the candidate appearing for examination. A Board member, as Dr. Knights has stated, receives twenty dollars for attending a meeting and ten dollars for conducting the examination. During the past year, I think it was, we had about eighty reciprocal candidates and somewhere in the neighborhood of thirty-five or forty to take the full examination. They paid a fee of ten dollars. The Board under these circumstances is two hundred dollars ahead. They have not expended the money in any lavish way at all, and I think fifty dollars as it stands at the present time under the new ruling will be hardly sufficient to maintain the Board in the future.

The President: What is your pleasure in regard to this resolution?

The Secretary: I move its adoption.

Motion seconded and carried.

The President: Any further business to come before the house?

Dr. Leo M. Crafts: A good many of us are familiar with the situation that expert medical testimony is in, and its lack of repute in court, and the things said about it from a legal standpoint. Most of us are familiar with the fact of medical men taking diametrically opposite sides in a court of law on the case before them, and there is nothing so calculated to bring medical testimony into disrepute as this.

Another thing is the question of fees when the medical expert goes into court. In some counties in this state they give the magnificent sum of five dollars a day for expert services. This is an insult to the profession, and it is hardly more than a hod-carrier gets. In European countries they have court commissions of experts which are very much better than the arrangement we have in this country, and something of the kind might well be introduced here. I read a paper on the subject before a meeting of the Mississippi Valley Medical Association years ago, and a movement was begun to take this matter up in the Mississippi Valley, to have uniform legislation provided for something of this sort, that is, to have a law passed providing for the appointment by the court of a commission of three or five experts in the line in which the case occurred, who should be paid by the state, and the men called and sworn who are not interested directly or indirectly in either side, and should be paid for examination and testimony and for appearance in court, if that is necessary. The law would leave it free for every state to call experts. If such a law could be passed calling for experts on either side, wrangling and opposition would be done away with.

Along the line of what I have said, I wish to move that the Legislative Committee be instructed to have presented to the legislature a bill providing for the appointing by the court of a commission of three to five experts in the field in which the case occurs, in which medical testimony is needed in court, and providing for one hundred dollars a day for attendance and service in court, and twenty-five dollars a day for any examination and report upon the case.

Motion seconded.

Dr. Emil S. Geist: I would move as an amendment that the Legislative Committee report back to this body before it submits any scheme to any legislative body.

The President: The Secretary calls my attention to the fact that there will be no meeting of this body until the legislature has met again.

The amendment was seconded, accepted, and the original motion as amended was carried.

The President: Is there any further unfinished business to come before the house?

The Secretary: I would request Dr. Crafts to give the Legislative Committee, of which the President and Secretary will be ex-officio members, an idea of what he would like to have in such a bill.

Dr. Crafts: I will do that.

The President: If there is no further business to come before the House, the Chair will entertain a motion to adjourn.

On motion, the House adjourned until 9 A. M., Thursday.

SECOND SESSION—AUGUST 15, 1912

The House met at 9:20 A. M. and was called to order by the President.

The minutes of the previous meeting were read and approved.

Dr. Beebe presented the following supplementary report of the Committee on Credentials which, on motion, duly seconded, was accepted: (See first report.)

The nomination and election of officers being in order, the following officers were nominated and duly elected:

President, Dr. Richard J. Hill, Minneapolis.

First Vice-President, Dr. H. C. Cooney, Princeton.

Second Vice-President, Dr. S. H. Boyer, Duluth.

Secretary, Dr. Thomas McDavitt, St. Paul.

Treasurer, Dr. E. R. Hare, Minneapolis.

Delegate to the American Medical Association for two years, Dr. Thomas McDavitt, St. Paul.

Alternate Delegate for one year, Dr. Leo M. Crafts, Minneapolis.

Alternate for two years, Dr. J. W. Andrews, Mankato.

The Councilors of the First, Fourth, and Seventh Districts, whose terms expired, were re-elected.

Dr. Workman: As President of the Council, I would say that we have a surplus of some three thousand dollars. We are not prepared to ask the delegates how much of it we shall invest, but we would like to invest a certain amount, which we feel justified in investing, in bonds or otherwise, and if at any future time it is thought wise to invest more, we can do so.

Dr. Liedloff: I move the privilege be granted to the Council to invest as much money as they see fit and in what manner they see fit.

Motion seconded and carried.

The Secretary: I wish some member would make a motion empowering the Secretary to voucher for the expenses of this meeting of the Association, that is, covering the expenses of the program committee, the expenses of taking care of our guests, etc.

Dr. Armstrong: I make such a motion.

Seconded and carried.

The Secretary: I would like very much that the Council during the year give authority to the Secretary to voucher for any of the detail expenses necessary in the running of the Association.

Dr. William Chowning: I move that the Councilors be empowered to make disbursement during the interim between the meetings of the Association.

Motion seconded and carried.

The President: The next thing in order is the report of the Necrologist, Dr. J. W. Andrews, Mankato, Chairman.

Dr. Andrews presented the following report:

REPORT OF THE COMMITTEE ON NECROLOGY

Duluth, Minn., Aug. 13th, 1912.

Your Committee on Necrology beg leave to submit the following: It is self-evident that the only practical way one has to collect the facts relative to the life and death of deceased members is to gather them through the different component societies of the state, therefore the committee sent a letter to the secretary of each and every component society in the state asking for the obituary of all physicians who had died the past two years.

I am glad to say that many replied in the negative, *i. e.*, that no deaths had occurred in their respective societies during the past two years. The affirmative replies revealed the fact that only twenty-three members of the Association have died during the past two years, provided that all of the secretaries replied where deaths have occurred in the time specified, but if all have not replied, mention of worthy members may be omitted from the following list:

Dr. Chas. O. Cooley, Madelia, June 13, 1912.
Dr. Albert J. Franklin, Blue Earth.
Dr. Albert C. Wedge, Albert Lea, October 23, 1911.
Dr. J. C. Adams, Lake City, December 19, 1911.
Dr. Willis H. Pratt, Stillwater, December 15, 1910.
Dr. John D. McNamara, St. Paul, March 11, 1910.
Dr. Belle Walrath, St. Paul, June 20, 1910.
Dr. A. J. Stone, St. Paul, July 5, 1910.
Dr. Frederick VanSlyke, St. Paul, November 24, 1910.
Dr. Willis H. Vittum, St. Paul, December 29, 1910.
Dr. George H. Bender, St. Paul, January 15, 1911.
Dr. Geo. M. Coon, St. Paul, November 20, 1911.
Dr. A. F. Pringle, Northfield.
Dr. J. A. Vieregge, St. Paul, September 17, 1911.
Dr. Judd Goodrich, St. Paul, November 30, 1911.
Dr. Edward Snow Wood, St. Paul, January 9, 1912.
Dr. F. C. Miller, Olivia, March 30, 1911.
Dr. Max P. Vanderhorck, Minneapolis, December 5, 1911.
Dr. R. R. Rome, Minneapolis, March 12, 1912.
Dr. J. T. Moore, Minneapolis, August 19, 1911.
Dr. J. C. Cockburn, Minneapolis, February 5, 1911.
Dr. T. N. McLean, Fergus Falls, March, 1912.
Dr. Edwin Phillips, Minneapolis, May 3, 1911.

The active professional life and the obituary notices I submit herewith as handed me by the secretaries of the respective societies.

Respectfully submitted,
J. W. ANDREWS,
Committee on Necrology.

[The above notices, or fuller ones, have been published in these columns.—THE EDITORS.]

On motion, the report was accepted.

Dr. E. M. Clay (Renville): I have a matter to bring before the House of Delegates, and also for the Council to act upon, which is of great importance. It is in regard to the ethics of our Association which have been so grossly trampled upon that I cannot help but make some mention of it, and I wish to introduce the following resolution:

WHEREAS, In January and March, 1912, there appeared in the *Heron Lake News*, a weekly paper published at Heron Lake, Minnesota, the normal circulation of which is one thousand copies, full-page advertisements of the Southwestern Minnesota Hospital, in which advertisements the principles of medical ethics were grossly violated, and such issues of said paper were circulated in a very large number, exceeding a total of fifty thousand copies, in the states of Minnesota, North Dakota, and South Dakota, thus bringing the medical profession of Minnesota into great discredit; and,

WHEREAS, The Board of Censors of the Jackson County Society, of which Dr. A. J. Moe, the actual proprietor and chief surgeon of such hospital, is a member, tried Dr. Moe for unprofessional conduct, and in the face of incontrovertible evidence of his guilt, simply censured him, now, therefore, be it

RESOLVED by the Minnesota State Medical Association, that the proper steps be taken to revoke the charter of the Jackson Medical Society.

To substantiate this evidence, I wish to hand to the Board of Censors some copies of these papers in which the advertisements were printed. There is a full page ad. in one. Of this issue of January there were twenty thousand copies sent to Minnesota, North Dakota, and South Dakota.

On the inside of this sheet there are seventeen local mentions in regard to the advertising for this doctor and his patients. In the other copy here, the *Lake Heron News*, there appears a full front page, of which forty thousand copies were sent out by mail through Minnesota, North Dakota, and South Dakota, and thirteen locals appeared on the inside of this sheet. I would like to offer these two issues in evidence with the resolution.

Dr. Jones seconded the resolution offered by Dr. Clay, which was referred to the Council.

Dr. Crafts: I would call attention to the fact that there are three standing committees that should be elected by the House of Delegates.

The Secretary: Heretofore these committees have been appointed by the President.

Dr. Workman: I move the in-coming president be empowered to appoint such standing committees as may be necessary.

Motion seconded and carried.

Dr. Leidloff offered the following resolutions of thanks, which were adopted:

RESOLVED, that the members of the Minnesota State Medical Association do hereby express their heartfelt thanks and their appreciation to the St. Louis County Medical Society and the citizens of Duluth for the cordial reception and royal entertainment accorded.

RESOLVED, that the thanks of the Association be extended to the Spalding Hotel for providing suitable accommodations for its members and places of meeting.

RESOLVED, that the thanks of the Association be extended to Dr. John A. Witherspoon, Nashville, Tennessee; Dr. T. Clark, Surgeon of the U. S. P. H. and M. H. Service, and to Dr. A. J. Ochsner, Chicago, for their interesting addresses.

Dr. Jones: I move that the next meeting of the Association be held in the city of Minneapolis.

The Secretary: I second Dr. Jones' motion in reference to the Association meeting in Minneapolis, and would move to amend that the date, some time in October, be set by the Council.

The amendment was seconded and accepted, and the original motion as amended was carried.

President Sneve thanked the members of the House of Delegates for the courtesy extended to him in presiding over their deliberations.

There being no further business to come before the meeting, on motion, the House of Delegates then adjourned *sine die*.

PRESIDENT'S ADDRESS

By Haldor Sneve, M. D.

ST. PAUL

The Minnesota State Medical Association was born in St. Paul in 1869, only forty-three years ago, although an organization under the same name was effected in 1855, which died after a short existence.

The medical profession of this state may well be proud of the record of this Association, which, although so young in years, has exercised so profound an influence on medical education in the United States; possesses one of the largest and most famous surgical clinics in the world within its membership, noted state and city health departments, a splendid medical school, modern public hospitals of all kinds for the afflicted step-children of nature; and enjoys an enviable distinction everywhere for the high standing of its personnel.

All this has been, in greater part, the fruit of that organization of pioneer physicians whose lofty ideals and high aims stimulated the profession of this state to so influence our legislation that our public-health service is a matter of pride, and spurred on the individual to high attainment in the noblest of professions.

In this paper I wish to survey, in a general way, what we have accomplished medically in our state, and then, exercising the privilege of presidents, offer some criticisms and suggestions.

The legislature of our state I believe to be willing to aid the medical profession in every possible way in passing suitable laws to advance the safeguarding of the public health if the problems are properly placed before it and if the members of this Association make it their business individually to further any project we may favor, I am sure that we can secure any legislation desired.

THE INSANE IN MINNESOTA

The institutions for the insane in Minnesota are as follows:

Hospital at Fergus Falls, opened in 1890, 1,650 inmates.

Hospital at Rochester, opened in 1879, 1,260 inmates.

Hospital at St. Peter, opened in 1866, 1,140 inmates.

Hospital for the Criminal Insane at St. Peter, opened in 1911, 60 inmates.

Asylum at Anoka, opened in 1900, 540 inmates.

Asylum at Hastings, opened in 1900, 540 inmates.

From their establishment up to the year 1901, the institutions were administered by a Board of Hospital Trustees, appointed by the Governor. In 1901 the separate boards governing the state institutions were abolished, and a State Board of Control was created to manage the state's correctional and charitable institutions to the great benefit of the institutions concerned. The state assumes the entire cost of caring for the insane, and appropriations for support are made at biennial sessions of the legislature.

The State Asylums at Anoka and Hastings are designed to care for the chronic class of insane. There are no commitments direct to these institutions. All inmates are transferred from the State Hospitals by authority of the State Board of Control.

A law passed in 1901 provided for the commitment of doubtful cases of insanity to certain wards in the county or city hospitals, to be detained there until the Board of Examiners "shall determine that he is cured or a fit subject for a state insane hospital." In 1901 the law was amended so as to provide for the establishment of Detention Hospitals at the three State Hospitals, and it was just chance that enabled us to save the detention hospitals in St. Paul, Minneapolis, and Duluth. Two years later an amendment was added permitting the reception of patients on voluntary commitment to the Detention Hospitals.

By a law passed in 1907, the Board of Control was authorized to appoint state agents to look after or supervise patients after leaving the hospital. In conformity with this law two agents were appointed—a man and a woman—whose entire time is taken up with these duties. This agency has proven a valuable adjunct to the state care of the insane at Minnesota.

While it is the laudable ambition of the superintendents to publish as high a recovery-rate as possible, it must be remembered that, unfortunately, in the lay mind an odium attaches to the person who has been to the insane hospital, and the idea of a detention hospital was to give an acute case a chance to recover without going to St. Peter, Fergus Falls, or Rochester. What difference is it, pray, if you are treated in a building called "detention", as long as you are taken to one of these institutions? We need detention hospitals in all the larger centers of population whence comes the greatest number of insane cases. I recommend a large receiving hospital for acute cases to be located in the midway accessible to the specialists of the Twin Cities and to the students of the University. As it now is, the insane are put in the county jails until taken before the probate court, a condition which should be corrected; further, our insane are taken to hospitals for the insane by deputy sheriffs instead of by nurses trained in insane hospitals. That Minnesota is doing good scientific work in this field is readily apparent if the annual reports of these hospitals are scrutinized. Our hospitals are overcrowded, and we should impress upon our legislators the importance of increasing our capacity so that patients need not sleep in hallways. Our excellent Board of Control makes the recommendation that the state should build an institution for the aged insane and thus relieve the overcrowding at our present hospitals.

The Minnesota School for Feeble-Minded and Colony for Epileptics at Faribault, opened in 1882, is under the charge of Dr. A. C. Rogers, of whose work we are justly proud. The state has 1,100 acres of land and buildings with a capacity of 1,500. At present the population is 711 males and 669 females, classified as follows:

School and Training Department, 239 males, 225 females.

Custodial Department, 310 males, 349 females.

Epileptic Department, 107 males, 94 females.

Farm Colony, 54 males.

The department for custodial girls is already filled, and applications are being turned away. The demand for the cure of the feeble-minded and of epileptics is increasing, and at the present time there is no limit in sight. The profession of the state should assist Dr. Rogers in the valuable study he is now making of the complete family history of his cases to help throw light on the vexed questions of etiology. It is a matter of congratulation that a trained laboratory expert will make special psychological examination of the pupils and do research work.

Minnesota maintains a School for the Deaf at Faribault where children can attend from September to June each year, taking a ten-year course. The children are taught lip-reading and manual training, as well as ordinary school topics, and trades that will enable them to support themselves. The attendance approximates 300 annually, about equally divided between the sexes.

In the same city is the School for the Blind, with an annual attendance of about 120.

Dr. H. Longstreet Taylor was the prime mover in the establishment by the state of a Sanatorium for Consumptives at Walker, the capacity of which at this writing is 110 patients. In this institution care and treatment can be had for $7.00 per week, the state defraying the deficit of about $5.00 per capita.

Guided by Dr. Arthur Gillette, Minnesota established, in St. Paul in 1897, a Hospital for Crippled and Deformed Children. At present the institution has a hospital department in connection with the City and County Hospital and a sanitarium at Lake Phalen. The little patients are both treated and educated, and the state is well repaid by this practical charity.

MEDICAL EXAMINING BOARD

Minnesota was the first state, I believe, to establish a board of medical examiners requiring physicians to take an examination for a license, the intention being to prevent the state being flooded with "quacks" to prey on the public. As the Board has been in operation since April, 1883, we are in a position to estimate its value. It can be said justly that the greatest benefit that has accrued from the establishment of this Board has been its effect upon medical education. It was the direct cause of making medical colleges advance their course from two to three years, in order to comply with our law. Other states followed Minnesota's example, and I believe that these boards gave the impetus needed to advance the requirements for the degree of M. D. in the United States; second, it has given us a high average grade of practitioners. On the other hand it may be said that our Medical Practice Act has failed to keep out "quacks"; that it has worked a hardship only on the regular graduate in medicine; that the example of doctors has been followed by the establishment of boards for barbers, horseshoers, nurses, osteopaths, and a number of others, which has made all boards almost farcical; and, finally, it has laid the profession of medicine open to the charge that selfish personal interest in keeping out doctors from the state has been the real reason for the maintenance of the Board. We may fairly say that the greatest good that could be accomplished has already been done, and that it is unnecessary to continue a collection agency for fees from such physicians as desire to practice in Minnesota. Personally, I do not believe in state's rights in this as in many other things, and I would like to see a federal examining-board licensing men to practice in every state, therefore, I recommend that we work to abolish our State Board of Medical Examiners and endeavor to influence Congress to pass a law creating a federal board.

NURSES

In papers written within the past few years I have advocated the establishment of a one-year course for nurses, which would be ample, in my opinion, to give us a vast army of competent sick-room helpers, so that any person when sick could secure proper nursing for a sum within the reach of anyone except paupers. As it now is, only the rich can really afford a trained nurse, and the others must cripple themselves seriously when such services are imperative. In the smaller towns and out in the country any nurse outside of a willing neighbor is out of the question. Besides being desirable for the sick, such sick-room helpers could be recruited from the crowded vocations, thus giving to woman another occupation. There is nothing in this movement which would prevent nurses taking three or four years of training to fit themselves as specialists, as superintendents, and for nursing those who can afford to pay for their services. Practically, the only argument that can be brought against such a movement is the financial one on the part of the trained nurse now at work, but this should not carry enough weight to prevent the establishment of this desirable innovation. To put it in other words, we want competent ten or fifteen-dollar a week nurses for the masses.

VALUE OF NEWSPAPERS

The civilized being of today is dependent upon the newspaper for the information which incites most of the actions of the individual. It guides public opinion, forms and follows it, and is altogether the most important single agency of our present civilization in existence. It is my opinion that the medical profession does not use the newspaper sufficiently. In the first place the people should be up to the present status of medical science at any time, instead of twenty to forty years behind. This can be accomplished by having medical societies furnish to the newspaper abstracts of papers and discussions, leaving out the names of the authors, and thus eliminating the only drawback to such advertisements. Secondly, in case of an epidemic the medical society should furnish to the public through the newspapers such information as is necessary, which is now obtained by interview with some more or less prominent local physician who may or may not know what he is talking about. Thirdly, I believe that every physician in a community should have his card in the public prints giving only name, address, and specialty, if any. In this way the public would know instantly upon referring to their paper who are the regular physicians in the community and would not have to ask an acquaintance or a stranger to be referred to this or that doctor. By furnishing such a directory the physicians could say to the newspaper: "We will not give you our cards if you allow offensive medical advertisements to appear in your sheet."

This suggestion was put into actual practice in Minneapolis some ten or more years ago and could have been made a grand success if physicians everywhere had taken it up. As it now is, only the well-known practitioner in a community is advertised, and we are forced to pay out money for having our names in capital letters inserted in various kinds of directories, which really fail of their mission in informing the public of what we do and where we are.

MEDICAL SOCIETIES

We enjoy a most excellent system of medical societies, but there is one function of a society which it should perform that we have omitted. The society should be the spokesman of the medical profession to the public; the societies should, for their own honor and the protection of the public, recommend candidates for all public appointive offices, such as the medical men for the militia, coroners, health officers, and school physicians, if such are necessary, so that our public men would not be guided in their appointment of medical officers by politics or friendship.

MINNESOTA STATE BOARD OF HEALTH

This Board was organized on petition of the State Medical Society, March, 1872, it being the third board in the country, and it is therefore our own child. The Massachusetts board was organized in 1869 and the California in 1871. During the forty years of its existence it has made an enviable record, and the governors of our state have kept it out of politics, so that the real efficient office, that of secretary, has known but two incumbents—Dr. C. N. Hewitt, and the present secretary, Dr. H. M. Bracken. To this fact must be ascribed, in part, the excellent services rendered because our secretaries have really trained themselves in the office, and had we had many secretaries, instead of two, we could not point with such pride to their achievements. The Board collects vital statistics; has a Division of Sanitary Engineering; has control of Offensive Trades and Public Water Supplies; has a Bacteriological Laboratory where a large amount of work is done in the contagious diseases; has a Pasteur Institute at the University; and, finally, it has a Division of Epidemiology.

A Department of Public Health was established in the University in 1875, but this appears to have languished. It would seem that this ought to be a most important part in medical education and that a course of lectures by the executive officer of the State Board of Health should be a fixed part of the University curriculum.

Foods were transferred from the Board of Health to the Dairy Department of the state. The important side of foods is the public health side, and our legislature should restore them to the Board of Health where they belong, and not burden the Dairy Department with a matter so foreign to its function.

Minnesota took a step backward when it removed the department of infectious diseases of animals to an independent board. Many animal diseases are transferrable to man, and I believe it diminishes the efficiency of both boards to have a Live Stock Sanitary Board, when this should be a part of the State Board of Health. Political juggling was responsible for the transfer of this department to five men, "three of whom shall be persons financially interested in the breeding of live stock in the state." It is clear that this meant that the commercial side of the matter was considered more important than the sanitary side of the problem. The further development of our State Board of Health should be in the direction of uniting municipal and county health officers with it, and making such offices permanent, thereby attracting trained specialists to this field. In some localities, such officers should devote their whole time to the work under the direction of the State Board.

THE UNIVERSITY MEDICAL SCHOOL

It is not too much to say that it is mainly owing to the endeavor of our brilliant Dean, Dr. F. F. Wesbrook, that our medical school has attained its present efficient condition, and the profession of this state should be a unit in furthering, by all possible means, the proper development of the medical school.

THE UNIVERSITY HOSPITAL

The proper and adequate development of the University Hospital vitally affects the welfare of our profession and the sick poor of the state. Almost unique in the effectiveness of its organization, treating only such needy sufferers as are endorsed by local physicians, and combining the highest type of medical service with the most practical and thorough teaching, it is already a source of pride to every physician in Minnesota At the present time it is able to conduct but three services, viz., general medicine, general surgery, and obstetrics, and the constant and emphatic demand for services in contagious diseases, diseases of children, diseases of eye, ear, nose and throat, nervous diseases, and psychiatry cannot be met until further funds are available for additional extensions. Moreover, while its main hospital building is beautifully located, fireproof, and in every way adapted to modern hospital uses, its nurses are housed in crowded and inadequate temporary quarters, and its service features are of necessity occupying valuable space, which should, at the earliest possible moment, be rendered available to the sick poor. Every effort should be made to double and treble the capacity of this great philanthropic and scientific center at the earliest possible moment.

INEBRIATE HOSPITAL FARM

Minnesota is making a new venture in providing for the treatment of the unfortunate victims of alcohol and drug habits in the institution at Willmar, which we hope will be open on November 1st of this year. The essential novel feature is treatment based upon the recognition of these habits as being acquired as vices and not put upon the victim through inheritance. That our law is a good one appears from the fact that New York and other states have passed laws modeled upon this one.

PAPERS

Complaints having been made from time to time that only a favored few were requested to read papers before this Association, our Program Committee sent out invitations to every member. The responses totaled 160, and we could put only 30 on our program, so that some new method will have to be devised in order to make our meetings fruitful in scientific contributions and discussions. We have already tried having sections, and we returned to the present method. As long as we use the system now in vogue we had better have symposia with provision for original contributions.

JOURNAL

In looking up the history of our Association, I was impressed with the great value of our transactions in book form. These volumes contain discussions at the meetings which otherwise are lost, and certainly the history of this Association has been valuable enough to merit preservation in permanent form. I therefore recommend that we resume our publication of transactions in an annual book, and as I can see no necessity for a medical journal for a society which meets but once a year and since we can publish our papers where we please I would recommend that all affiliations with a medical journal be discontinued.

It can but be a source of pride to every member of this Association to view the achievements of medicine in a community so recently rescued from the wilderness, and it puts a burden upon every new member and every succeeding generation to try to maintain the high standard and the achievements of their predecessors.

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SEPTEMBER 15, 1912

MINNESOTA'S MEDICAL DEFENSE LAW

Our readers will find in the transactions of the State Association, published in full in this issue, an account of the working, in the first year, of the medical defense law; and they will also find the necessary steps to be taken when the aid of the State Association is needed in the defense of damage suits. We may also add that they will get a hint from the report what may be expected from unscrupulous attorneys and—must it be added?—from the same kind of physicians seeking the fees of experts.

The extracts from the By-Laws are particularly worthy careful reading.

It must be gratifying to any member of the State Association that he can obtain for one dollar the influence of the Association's name and its financial backing in malpractice suits.

The entire report of the annual meeting of the Association and the President's Address should be read carefully by every medical man in the Northwest.

THE NECESSITY OF PSYCHOPATHIC HOSPITALS

There is a growing demand for public and private psychopathic hospitals, if we are to consider the insane from a humanitarian standpoint. There is, first of all, too little interest shown by the general petitioner in the care and treatment of the insane. This is due to a lack of material to be used for clinical teaching in our medical schools. The average clinic in which an attempt is made to offer instruction to medical students, is too spectacular, and, if not spectacular, there is a labored effort on the part of the instructor to define a type of insanity in which trifling and needless details obscure the real form of disorder. We do not seem to get away from the mental side, neither do we attempt to clarify the physical findings.

The student carries away from the clinic a hazy chain of ideas, that the insane differ wholly from other forms of disorder or disease. He is not taught to make a careful study of the life-history of the individual and to analyze the anatomical and mental make-up of the case he is to observe. His attention is forcibly drawn to a few peculiar ideas, delusions, or the abnormal conduct on the part of the patient, rather than to the ancestry, growth, and development and the incidental illnesses of each individual.

To simply hear amusing incoherent statements of the insane, is only a side issue, while the facts of heredity, environment, and disease are overlooked.

The scientific analysis of the individual includes so many factors which ultimately lead to the all-important end, namely, the prognosis, that it would seem as if the profession would be unanimous in urging the establishment of a psychopathic hospital in connection with every medical school.

No medical student should graduate from a college without a knowledge of the fundamentals of insanity. He must study the normal man, or, at least, the well-balanced mind, before he enters into the field of abnormal psychology. In order to begin this study he should investigate the problems in sociology that confront him on every side. The various charitable organizations offer unlimited material, and the schools and universities teach him how to classify different types of people. The medical course prepares him for his work in neuropathology and its relationship to the pathology in non-nervous organs. Then, too, the problems in prevention are absorbingly interesting. The influx of our foreign population suggests that the unfit and badly born subjects are sources of danger for future generations. To eliminate them should be the aim of every student in psychology. The numbers of feeble-minded, of the undisciplined, and of the criminal classes, are a constant menance to normal offspring. If the unfit and the incurable can be prevented from propagating their kind by legal or medical means, the physician is the one to diffuse the information. Segregation and sterilization for a few generations would reduce insanity, feeble-mindedness, and crime to a very low percentage. It is by education of the masses that this can be accomplished.

Private institutions, under competent observers, would reach a class of philanthropists that public institutions do not interest. First of importance, however, is the establishment of teaching psychopathic hospitals in connection with state universities or with general hospitals. The public mind is not yet ready to entertain the idea that mental cases, so-called, are only different forms of disease. The setting aside of wards, or, preferably, separate buildings in or near general hospitals, would soon dissipate these groundless fears. In order that psychopathic hospitals may become a part of every teaching institution our legislators must provide ample means and proper equipment and maintenance.

Who will assume the education of the legislature?

NEWS ITEMS

Dr. F. A. Slyfield has moved from Grand Forks, N. D., to Seattle, Wash.

Dr. E. W. McEssy has moved from Anamoose, N. D., to New Rockford, N. D.

Dr. P. F. Kearney, of Great Falls, Mont., has gone to New York to do post-graduate work.

Dr. C. H. Denniston, formerly of Crookston, died at Medford, Oregon, last month at the age of 59.

Dr. O. N. Begtrup, of Rugby, N. D., has returned from a course of post-graduate work in Europe.

Dr. Harold L. Lamb, of Sauk Centre, was married on August 7th, to Miss Grace Whiting, of Spring Valley.

Dr. P. G. Reedy, of McLaughlin, S. D., was married last month to Miss Rachel N. O'Neill, of Fort Yates, S. D.

Drs. Beckman and Braasch, of the Mayo Clinic, Rochester, leave this week for a trip to France, Germany, and Switzerland.

The plan for the Methodist Deaconess Association to take charge of the Brookings (S. D.) Hospital will doubtless be carried out.

Dr. George B. Grober, of Kelliher, died on Sept. 2d, from an overdose of morphine. Dr. Grober only recently came to the state.

Dr. Charles A. Smith, of Minneapolis, died on Sept. 1st, at the age of 48. Dr. Smith graduated from the Minnesota College Hospital with the class of '88.

Dr. Arthur E. Smith, of Minneapolis, has gone to Europe for a special course in eye, ear, nose, and throat work. He will be absent for a year and a half.

The new St. Joseph's Hospital at Ashland, Wis., was dedicated on Sept. 5th. The hospital building cost $300,000 and is said to be the largest in Wisconsin.

Dr. G. L. Gosslee, of Minnesota Lake, has formed a partnership with Dr. E. W. Humphrey, of Moorhead. Dr. Robert Guilmette succeeds Dr. Goslee at Minnesota Lake.

The Commissioners of Ward County, N. D., will sell the county's hospital, located at Kenmare. It has been leased for some time by the Catholic Sisters, and they may buy it.

Dr. Welch, Supt. of the State Hospital at Fergus Falls, has been granted a long leave of absence by the State Board of Control that he may recuperate. He will go east and then to Panama.

Dr. John G. Phillips, of Northfield, died on Sept. 2d, at the age of 50. Dr. Phillips was a graduate of the College of Physicians and Surgeons, Chicago, and had practiced in Northfield for twenty years.

The American Red Cross Society sends out a car which is in charge of Dr. M. W. Glascow, for the purpose of giving first-aid instructions to railway men and the boy scouts. The car is now in the Northwest.

Dr. J. D. Widemeyer, superintendent of the new tuberculosis sanitarium established by North Dakota and located at Dunseith, has been visiting the Minnesota sanitariums. The North Dakota sanitarium opens today.

The St. Louis County Medical Society has made a vigorous defense of the Duluth school inspectors who have been attacked as incompetent by an ex-engineer of the schools, who is seeking membership on the Board of Education.

The Pure Drug and Food Bureau of South Dakota is doing excellent work. The Bureau keeps a representative in the field all the time, and has other sources of information of violations of the law under which it is working.

The German Baptist Hospital of North and South Dakota located at Aberdeen, S. D., will hereafter be conducted by a stock company, and a corporation with $100,000 capital stock has been formed.

Bismarck, N. D., shows the remarkably low death-rate of 6.2 per 1,000 residents. On account of the hospitals in the city, the non-resident death-rate brings the general rate up to 14 per thousand.

Dr. Angus W. Morrison, a graduate of Johns Hopkins, with a year's service in the hospital, a year in the Royal Victoria Hospital at Montreal, and a year in the clinics around the world, will be associated with Dr. W. A. Jones, of Minneapolis.

Dr. Robert M. Phelps enters upon his duties as superintendent of the St. Peter State Hospital today (Sept. 15th), succeeding Dr. H. A. Tomlinson, who will soon take up the exceedingly important work at Willmar, the new state home for inebriates.

Dr. E. F. Ladd, of the North Dakota Pure Food Commission, has issued a very valuable bulletin (No. 11) on the pure food laws of that state, with important rulings on the same. North Dakota is probably the banner state in the Union in this line of work.

Dr. H. M. Bracken, executive officer of the Minnesota State Board of Health, says more than 2,000 lives can be saved annually in Minnesota by proper health measures. He seems to forget that the people of Minnesota have *more important* matters to consider!

Dr. Linda Burfield Perry Hazzard, formerly practiced in Minneapolis. She recently went to Tacoma, Wash., and has now had her license revoked. She is a "fast-cure specialist," and is under sentence for manslaughter, one of her patients having died from starvation during her treatment.

A case of smallpox was found on a Great Western passenger train last week near Rochester. Dr. Harry Wood, the new health officer of Rochester, was on the train and discovered the case. His work was quick and efficient. The car was locked and held in the yards at Rochester. The patient and two passengers were taken to the city infirmary, and other passengers were vaccinated and allowed to proceed, word being sent to the health officials of the towns to which the passengers were going.

PHYSICIAN WANTED

To locate at Kelliher, Minn. This is a hustling village of about 300 inhabitants, and is surrounded by a well-settled farming community. The roads are good and can be traveled at all times of the year. This is an exceptional opportunity for any one looking for a good village and country practice, and is worth looking up. Address for further information W. M. Bruce, Kelliher, Minn.

PRACTICE FOR SALE

A splendid modern hospital in a growing town of 2,500 in southwestern Minnesota. The very best surrounding country. An unusual opening for a good surgeon. Address H. W., care of this office.

PHYSICIAN WANTED

In a good farming district of South Dakota, village of 275 people, a lively and growing town. Last physician left because he desired a different kind of work in Canada. Country is rich and people want a good physician. For full particulars address S. H. Collins, Lily, S. D.

LOCATION FREE

Wanted at once a German Catholic physician to locate in a prosperous and growing town 26 miles north of Minneapolis, on the Great Northern. Town of 300 inhabitants and another town of 500 two miles away. Doctor in latter town not a Catholic. Competition other directions 9, 12, and 10 miles. Easy to get all the business. Office rent $2.50 per month furnished with steam heat. Good opportunity for a drug store, too. Address W. H., care of this office.

AN ASSISTANT WANTED

I want a physician as assistant in country practice for period of one year. State age, salary desired, and experience. Address G. G., care of this office.

MINNEAPOLIS OFFICE FOR RENT

I will transfer my 4-year lease of four rooms in Reid Corner, or will sub-let the rooms a part of the day, or sub-let part of the rooms. For further information, Dr. W. J. Marcley, 311 Reid Corner, Minneapolis.

FOR SALE

So. Dak. Co. Seat town; $3,000.00 practice; drugs and outfit at invoice, about $500. Large territory. No opposition. Address, M. L., care this office.

PRACTICE FOR SALE

$500.00 cash takes one of the very best medicine and surgery practices in one of the best towns in state; big monthly railroad pay roll, from $25,0000 to $30,000. Excellent opportunity to do surgery; with best of hospital equipment. Reasons for selling, am going east. Don't answer unless you have the cash. Address, H. B., care of this office.

GOOD OFFICE FOR RENT

Good opening for a live physician on the best car line in the city; no doctor's office on this corner; no practice to purchase. Well-settled community and growing rapidly. Location must be taken at once as rooms suitable for offices are across street from drug store. Address, F. B., this office.

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF MINNESOTA FOR THE MONTH OF JUNE, 1912

REPORTED FROM 81 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	2	1														
Albert Lea	4,500	6,192	3															
Alexandria	2,681	3,001	4													2		
Anoka	3,769	3,972	6											3				
Austin	5,474	6,960	4															1
Barnesville	1,326	1,353	1	1														
Bemidji	2,183	5,099	9	1										2				
Benson	1,525	1,677	*															
Blue Earth	2,900	2,319	0															
Brainerd	7,524	8,526	7											1	1			
Breckenridge	1,282	1,840	2															1
Canby	1,100	1,528	*															
Cannon Falls	1,239	1,385	0															
Chaska	2,165	2,050	*															
Chatfield	1,426	1,226	2	1		1												
Cloquet	3,074	7,031	6												1	1		2
Crookston	5,359	7,559	5	1														
Detroit	2,060	2,807	3					1										2
Duluth	52,968	78,466	77	10	1	8					1			4	2	1	1	5
East Grand Forks	2,077	2,533	0															
Ely	3,572	3,572	3		2													
Eveleth	2,752	7,036	5			1	1								2			
Fairmont	3,440	2,958	3															
Faribault	7,868	9,001	5											1			1	1
Fergus Falls	6,072	6,887	6												1			1
Glencoe	1,788	1,788	0															
Granite Falls	1,454	1,454	0															
Hastings	3,811	3,983	2															
Hutchinson	2,495	2,368	1															1
International Falls		1,487	5															2
Jordan	1,270	1,151	1															
Lake City	3,142	3,142	4															1
Le Sueur	1,937	1,755	0															
Little Falls	5,774	6,078	3			1										1		
Luverne	2,223	2,540	5	1		1												
Madison	1,336	1,811	0															
Mankato	10,559	10,365	5	3												1		
Marshall	2,088	2,152	1															
Melrose	2,591	2,591	2	1														
Minneapolis	202,718	301,408	236	27	2	13	3	2	1					3	6	18		18
Montevideo	2,146	3,056	2			1												
Montgomery	979	1,267	2															
Moorhead	3,730	4,840	4	1												1		1
Morris	1,934	1,685	1													1		
New Prague	1,228	1,554	0															
New Ulm	5,403	5,648	3															
Northfield	3,210	3,215	4													1		
Ortonville	1,247	1,774	2															
Owatonna	5,561	5,658	3															
Pipestone	2,536	2,475	2					1										
Red Lake Falls	1,666	1,666	4															2
Red Wing	7,525	9,048	7		1													2
Redwood Falls	1,661	1,666	3					1										
Renville	1,075	1,182	3													1		
Rochester	6,843	7,844	26	3	2						1					5		1
Rushford	1,100	1,011	1															
St. Charles	1,304	1,159	5	1												1		2
St. Cloud	8,663	10,600	9															
St. James	2,102	2,102	3	1				1										
St. Paul	163,632	214,744	186	24	2	8	2	2			1				7	19	1	12
St. Peter	4,302	4,176	1															
Sauk Centre	2,154	2,154	3															
Shakopee	2,046	2,302	2															
Sleepy Eye	2,046	2,247	2															
South St. Paul	2,322	4,510	6			1												2
Staples	1,504	2,558	0															
Stillwater	12,318	10,198	8			1								1				1
Thief River Falls	1,819	3,174	5	1														
Tower	1,111	1,111	1															
Tracy	1,911	1,826	2															
Two Harbors	3,278	4,990	4					1										1
Virginia	2,962	10,473	6	2														2
Wabasha	2,622	2,622	4															
Warren	1,276	1,613	2															
Waseca	3,103	3,054	3															1
Waterville	1,260	1,273	1															
West St. Paul	1,830	2,660	0															
Willmar	3,409	4,135	2															1
Winona	19,714	18,583	21	1		1	1								1			3
Winthrop	813	1,043	0															
Worthington	2,386	2,385	1													1		

REPORTED FROM 55 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	0															
Aitkin	1,719	1,638	1															
Akeley			0															
Appleton	1,184	1,221	0															
Belle Plaine	1,121	1,204	0															
Biwabik		1,690	1															
Bovey		1,377	1															
Browns Valley	721	1,058	2															1
Buffalo	1,040	1,227	0															
Caledonia	1,175	1,372	2													1		
Cass Lake	546	2,011	0															
Chisholm		7,684	3			2												
Coleraine		1,613	0															
Dawson	962	1,318	0															
Delano	967	1,031	1													1		
Farmington	733	1,024	0															
Fosston	864	1,055	0															
Frazee	1,000	1,645	0															
Glenwood	1,116	2,161	3			1										1		
Grand Rapids	1,428	2,239	5	2	1													
Hibbing	2,481	8,832	8		1						1					1		3
Jackson	1,756	1,907	1															
Janesville	1,254	1,173	0															
Kenyon	1,202	1,237	2	1														
Lake Crystal	1,215	1,038	1															
Litchfield	2,280	2,333	5	1							2					1		
Long Prairie	1,385	1,250	1															
Madelia	1,272	1,273	2			1												
Milaca	1,204	1,102	1	1														
Mountain Lake	959	1,081	0															
Nashwauk		2,080	2	1		1												
North Mankato	939	1,279	1															
North St. Paul	1,110	1,404	0															
Osakis	917	1,013	0															
Park Rapids	1,313	1,850	1		1													
Pelican Rapids	1,033	1,019	1	1														
Perham	1,182	1,376	1														1	
Pine City	993	1,258	1															
Plainview	1,038	1,175	2								1							
Preston	1,278	1,193	0															
Princeton	1,319	1,555	1															
St. Louis Park	1,325	1,743	1			1												
Sandstone	1,189	1,818	*															
Sauk Rapids	1,391	1,745	1															
South Stillwater	1,422	1,343	1															
Springfield	1,511	1,482	2															
Spring Valley	1,770	1,817	1															
Wadena	1,520	1,820	0															
Wells	2,017	1,755	1												1			
West Minneapolis	2,250	3,022	1															
Wheaton	1,132	1,300	0															
White Bear Lake	1,288	1,505	4													1		2
Windom	1,944	1,749	0															
Winnebago City	1,816	2,555	0															
Zumbrota	1,119	1,138	2													1		
STATE INSTITUTIONS																		
Anoka, Asylum			4	1														
Faribault, School for Blind			0															
Faribault, School for Deaf			0															
Faribault, School for Feeble Minded			8	3		3												
Fergus Falls, Hospital for Insane			14	6	1	1										1		
Hastings, Asylum			2	1														
Minneapolis, Soldiers' Home			4		1													
Owatonna, School for Dependents			3			1												
Red Wing, State Training School			0															
Rochester, Hospital for Insane			10		1	1												1
Sauk Centre, Home School for Girls			0															
St. Peter, Hospital for Insane			3															
St. Cloud, State Reformatory			0															
Stillwater, State Prison			0															
OTHER PARTS OF STATE			637	54	10	29	9	2	1	0	17	0	0	5	27	57	4	59
Total for state			1511	153	26	78	16	11	2	0	24	0	0	20	49	119	8	132

*No report received. Registrar not doing his duty.

112 stillbirths not included in above totals.

Conditions of Malnutrition

are exceedingly common among children and in their treatment a prescribed dietary becomes all important. Drugs occupy but small place in the problem of treatment.

A simple and generally uniform diet is indicated covering food of right nutritive value, easily digested and promptly assimilated; for digestive symptoms if not constant are readily excited.

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Made of choice wheat and malted barley (including the outer coat of the grain in its milling), the valuable organic mineral ingredients essential to tissue building are retained. As is well known, these are lacking in the impoverished product of the miller of white bread flour.

Long baking (from 12 to 16 hours) under thoroughly sanitary conditions, and the action of the diastase of the barley in the presence of heat and moisture, results in the conversion of a large portion of the starchy ingredients.

These processes of the manufacture of Grape-Nuts parallel, to a degree, the functions of the human digestive organs and produce a food well on its way to complete digestion.

The *Clinical Record* for Physician's bedside use sent, prepaid, to any Physician or Nurse who has not already received one. Also a box of samples of Postum, Grape-Nuts and Post Toasties.

POSTUM CEREAL CO., LTD., BATTLE CREEK, MICH., U. S. A.

PUBLISHER'S DEPARTMENT

HORLICK'S MALTED MILK

Horlick's Malted Milk has come to occupy a place in the dietary of both infants and adults about which there ought not to be longer any doubt. For convalescents and for weak people whom the physician is trying to build up, this preparation is unequaled not only by any product of its class, but, for general use in such cases, by any artificial food whatever. It is in no sense a proper substitute for good breast-milk, and no mother is justified in using it to enable her to wean a child prematurely; but when a child is weaned too early or at the usual period, this food has its place in such child's dietary. It is indeed a household staple, and the Horlick Company deserves great credit for the uniform character of their product and for the usual freedom from extravagant claims in their literature.

THE WALKER SANATORIA

Walker, situated on Leech Lake, in Northern Minnesota, is unquestionably the best place in the Northwest for a sanatorium for the tuberculous. The State of Minnesota recognized this fact when its own institution was located there, and it is fortunate that a private institution of high character is located there.

Dr. F. L. Wilcox conducts a private hospital of this kind and can care for a small number of patients. He accepts only cases in the incipient stages, and practically all such cases under his care and with such an environment may expect as complete recovery as is possible in this disease.

Dr. Wilcox will be pleased to correspond with physicians who have patients in need of sanatorium treatment. Address Dr. F. L. Wilcox, Walker, Minn., for such mnformation as is desired.

THE RETURN FROM THE COUNTRY

Almost every city family, whose exchequer will permit, is accustomed to spend a goodly portion of the heated term away from home. This is both natural and salutary, provided good judgment is exercised in the selection of the country place or summer resort, as regards its general healthfulness and sanitary environment. Unfortunately sanitation on farms and in rural communities is not always what it should be and the result is that many health and pleasure seekers return in the Autumn depressed and run down or perhaps infected with malarial or typhoidal poison. In other cases, especially at crowded fashionable resorts, because of the continual round of exciting amusements, some are tired and fagged out instead of rejuvenated as the result of their Summer's outing. Many are certainly in need of that general constitutional reconstruction and building up of force and resistance which is necessary to withstand the business or social strain of the fall and winter. In such cases there is no one single remedy quite as dependable as Pepto-Mangan (Gude). It increases appetite, restores strength and general vitality, reinforces the hemoglobin content of the blood and acts as a prompt and efficient general tonic and reconstituent for patients of all ages.

STAMMERING

Every physician knows that the stammering child is handicapped to an extent that often bars him, in later years, from social and, to some degree, from business life. And every physician should know that stammering can readily be overcome when taken early, but is overcome with great difficulty when the habit becomes confirmed as it rapidly does with advancing years.

There is an institution in Minneapolis for the cure of this malady which cannot be recommended too highly. It is conducted by Mr. Wald M. Duke, who has gained the confidence of all physicians who know him, and who is recommended in the highest terms by the Minneapolis Board of Education and the City Superintendent of Schools, they having seen much of his remarkable work.

Every physician in the Northwest should know of Mr. Duke's work, and thus be prepared to give the benefit of his great skill to the children of their patients whenever in need of such treatment.

Mr. Duke's address is 1800 Third Ave. So., Minneapolis.

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SECOND EDITION

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THE
JOURNAL-LANCET

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PUBLISHED TWICE A MONTH

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UNIFYING THE MEDICAL PROFESSION—ORATION IN MEDICINE*

By John A. Witherspoon, M. D.
President-elect of the American Medical Association
NASHVILLE, TENNESSEE

Mr. President and Members of the Minnesota State Medical Association: I feel especially complimented to have been invited to this state, as I understood, to make a little talk, not to give the oration in medicine, until I saw it on the program this morning; yet I feel that I would be unworthy of the place that I occupy in the medical profession, that is, as an internal practitioner, if I did not appreciate a visit to the state that has done so much for medical education in the last few years. Having been on the Council on Medical Education of the American Medical Association since its organization, I was in a position to know that your state and its great university have made wonderful strides and done much to set the pace in improving medical teaching in this country. Therefore, it gives me a great deal of pleasure to compliment the profession of Minnesota and, even what I regard as better still, the people of Minnesota, upon having such a wide-awake medical profession for having improved the curriculum and medical education to the extent they have. It inevitably must follow that your people will have better prepared medical advisors from now on, notwithstanding how great they may be at present. Therefore, I feel, as I have said, especially complimented by it, and I wish to thank the President and Secretary, and, through them, you, for being here. (Applause.)

Rather than speak on some of the questions in medicine, if you will pardon me, for a few moments,—I shall not detain you long,—I would like to speak of a subject that is near to my heart, namely, the unifying of the medical profession in this country into one grand body, so that we may be able to accomplish the great objects of usefulness the American Medical Association contemplates.

I cannot imagine any body more democratic, having as its units the state organization and the county organization, than the American Medical Association. Now, if it has fallen short of its objects, if it has been open to criticism, and I do not say it has not, then whose fault is it? If it is a democratic body composed as it is of these units, gentlemen, just as sure as we live the objects of that great body will be accomplished only when these units form themselves into one single unit with a singleness of purpose, and that is to bring that great national body up to its true state of usefulness. The American Medical Association ought to stand for everything that is good and great in American medicine, and I am sure that if it is only handled properly, if these units will only do their part, there will be no such thing as failure, and there will be no ground for criticism of that great national body. If it had alone for its function, fellow practitioners, the bringing together of men socially and professionally and scientifically once a year, it would have then accomplished a great deal. There are always benefits to be derived from the bringing together of men over different sections of the country for discussion, in exchanging ideas, the forming of friendships in true American style, and in that patriotic desire for the good; but that is only a part of the great usefulness of this body. Take, for instance, one subject alone, medical education. Some of you possibly have no idea what a wonderful transformation has taken place in this country in the last ten years and practically under the supervision and work of the American Medical Association. Ten years ago there were within four as many medical colleges in the United States as existed in the entire world. We had at one time 168 medical colleges, and the rest of the entire world had only 172. We found that many of these schools were improperly equipped both in teaching facilities and in teachers, but that condition has gradually been changed and transformed into better conditions, until now forty or fifty of these schools have gone out of existence, and the time has come when the great profession of America has risen up in its might and determined that no school shall live that does not live for a purpose, and I think that purpose must be the proper equipping of young men to assume that most sacred of all obligations, and that is the care of a human life. (Applause.)

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*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

Now, I am not uneasy about the medical profession. I am not afraid of the isms and pathies when they go against a profession that came into the world with the Man of Galilee. Notwithstanding we have been called trusts and other pet names by various organizations, if you will investigate the sources, you will find they usually originate with pathies and isms, people who are living upon the afflictions of their fellow men, or some disreputable patent medicine concerns who are determined on their part to treat our patients for us. Those are the people who are fighting American medicine, gentlemen. Are we going to throw up the white flag every time a force of this sort springs up? Frequently our profession gets undeserved rebuke, but, it seems to me, we have stood for years as our brother's keeper, and if we are to hold our own in the great professions we must continue to be our brother's keeper; and the time has come when we must educate young men so that they are competent to deal with the great problems of medicine at the present time in this age of prevention.

"To cure is the voice of the past, to prevent, the divine whisper of today."

Think of it! If it were possible for us to educate the people, we should be able to accomplish a great deal.

I was struck with what your President said this morning about the use of the press. I believe he is right when he said the newspapers are the great teachers of the people, that the newspapers mould public opinion; and I feel that, away back in the days when things were dark in medical circles, when we did most of our work without proper scientific and definite knowledge, we hid behind obscure positions, but there is no place for that today. The time has come when American medicine has risen to that proud distinctive position where she can give reason for the belief that is in her. The time has come when, by the proper use of the laws of prevention, with the associated help of the people, which must come by education, we can say to all these diseases that hitherto have invaded our country and left a trail of death behind them, you cannot cross our borders again. We can say to typhoid fever, with the help of the people, you can no longer decimate our homes. We can even say to the great white plague, you will be driven from our midst just in proportion to the education of the people, because of the fact that it is not an hereditary disease, but pure house-to-house infection.

How are you going to educate the people? The American Medical Association has organized a committee on publicity and public health whose duty is along this particular line, the object being to try to instruct the people in all the cities and states of this country in regard to the laws of sanitation and prevention, so that better use may be made of our services. Can the American Medical Association do better than to help to raise the standards of teaching in this country and pass on with the same breath and say to the people, "We want you to know why, and what we ask and plead for is that you may be able to assist us, not only in the passing of laws, but in their enforcement, which means the protection of your loved ones." Those are the two functions of the American Medical Association that are being pushed at the present time, and that should receive the support of all men engaged in the practice of medicine. Then, we have a great organized committee looking after the purity of the drugs used in this country, and this committee is not composed of men chosen *ad libitum*, but of men chosen for their ability to pass on these things. I can imagine no better purpose than for the medical profession to see that the people must have pure drugs and pure foods. (Applause.) Our forefathers, when they came into this country and gave battle to those here, who fought from behind the hills and trees of the forest, lived close to nature, and they were strong robust men; but now, with the adulterations of commercialism, we are gradually getting away from God's own laws; the people are gradually getting into a state where ill health comes very largely from people not being able to help themselves through pure, unadulterated medical and commercial interests. The time has come when the medical profession must rise up and must say to the world that this shall not be; that we are going to give you, first, an enlightened profession; we are then going to teach you how to preserve your health; we are going to give you pure foods and medicine, and the purer the food the better; and as this is gradually inculcated into the minds of the people we shall then have fulfilled some of the missions for which our profession was created. How is this to be accomplished? It must be accomplished by unity of purpose and by determined action. There is not a doctor within the sound of my voice today who would hesitate for a moment to keep any disease out of the household of one of his clientele. Now, if that is true locally, the individual unit but makes part of the whole. If you are willing to do that for your clientele, for your citizens, for your neighbors, you ought to be willing to help your brothers in less favored communities to do it for their clientele. And the only way that can be done is by a combined effort on the part of the entire profession. I want to live to see the day when the American Medical Association, the great central recognized body of this country, shall have an escutcheon so entrenched from commercialism, so free from any dogmas, so free from any political trickery, that it will stand as a clean advocate of all that is great in medicine—yes, like Aladdin's lamp, leading the people out of the tribulations of the past into a more clear and helpful atmosphere; and as we improve these conditions, just in proportion to their importance will you have a better citizenship, will you have a stronger statehood, will you have a stronger nationalism. After all, gentlemen, it is upon us that these burdens must fall, and it depends largely on what stand we take as to whether we shall be successful in the matter of achieving what we desire.

I was pleased to see here an effort to organize the secretaries of the various county medical societies. They come together and discuss ways and means of getting men out to their meetings. Therefore, I want to add one other word, namely, we have too long met behind closed doors and discussed our knowledge among ourselves. The time has come when all of the ills and the laws of health must be made known to the people, and it is not, in my opinion, disreputable for us to establish some bureau of information like the American Medical Association has, and, if necessary, utilize the press. I have yet to see a great editor worthy of the name of moulding the opinions of the American people who would not give to the medical profession of the country the right to use his columns and at the same time help to carry on the fight against the various isms and pathies which have stood in the way of progress. Therefore, I say, let us rise as a man and meet this obligation. Let it be known that we are not simply doctors to cure the people, but we are doctors to prevent the people from being sick. That is the essential thing we want. With the influence of this great body coming, as I have said, from the units, we can accomplish this purpose. It is growing now as rapidly as I have ever known any great movement to grow, and in my judgment it will be a matter of only a few years before we shall be proud we have such an organization with sufficient funds to push this great work of good among the people, and for that reason I have taken your time to call attention to only a few of the great works contemplated by your national body, and I ask you in this great progressive state of Minnesota to rise up as your units are called for and meet the demands of your country as you have met them for your state. If you will do that, there can be no slurs on the State of Minnesota. (Applause.) Gentlemen, I thank you for your attention. (Loud applause.)

A NEGLECTED DANGER FROM ANESTHESIA*

By Robert S. Hart, M. D.
HAZEL, S. D.

The substance of this paper was originally presented before the Watertown District Society about a year ago under the broader title, "The Choice of an Anesthetic." Since that time the subect of anesthesia and anesthetics has been reviewed in the Department of Therapeutics of *The Jour. of the A. M. A.* more amply and much more ably than I could hope to do. That résumé of the subject considered the old and new anesthetics, the old and new methods of administration, the classic dangers and various means to avoid them, and, besides, many modern theories and the results of recent research concerning the causes of death during anesthesia. At about the same time a series of original articles in the same paper and elsewhere considered this matter in detail from various points of view. These have added greatly to our literature and somewhat to our knowledge of this field.

To attempt to review these publications would be rash in me and very wearisome to you and I shall not do so. Suffice it now to say that it was repeatedly shown that our safest agent during anesthesia is nitrous oxide gas, the next is ether, with chloroform a rather poor third. However, in using nitrous oxide, with or without oxygen, the apparatus necessary is cumbersome and expensive, not readily transportable, and the gas is often difficult or impossible to obtain. These features practically preclude its general use outside of hospitals, but inside of them I believe it should, and in time will almost wholly displace ether and chloroform. At the present time one of these two agents is used in 90 per cent or more of the cases in America.

H. A. Hare, in Keen's "System of Surgery," gives figures illustrating the relative danger from the use of these two drugs, but points out that the statistics usually given *seem* more prejudicial to chloroform than a more careful consideration of the facts would warrant. He mentions the fact that ether is used in most hospitals and given by trained anesthetists, while chloroform is much more commonly chosen by the man working in the home, under adverse circumstances; and that ether may be administered by the novice without immediate disaster, while chloroform in such hands is very dangerous. I would urge yet another fact bearing on this matter, i. e., that American custom has decreed the use of ether except in the face of special contra-indications, such as evident pulmonary or renal disease. These contra-indications to the use of ether are contra-indications to the use of any anesthetic, so that chloroform is only *relatively* indicated, and in this class of cases the death-rate is noticeably higher, even with the most suitable anesthetic, than among ordinary cases with either of these agents. This, I believe, is the reason that we find in the reports from any one hospital that chloroform-deaths are relatively more frequent than ether-deaths. This has increased the *apparent* danger of chloroform. To determine the *real* danger one must bear in mind all the factors that modify the validity of available statistics.

There is what seems to me a strange silence regarding the late or remote effects of anesthesia. True it is that much—overmuch—has been said and written lately concerning "delayed chloroform poisoning." It has only recently come to the notice of the profession, and the subject has all the newspaper value of any startling recent discovery, but its very newness and the meagerness of our knowledge concerning it evidence its comparative rarity. The novelty of the name and the frequency of a fatal issue will probably lead to the use of this term to explain many deaths due to other causes, just as the administration of diphtheria antitoxin was once so stigmatized. And so we are doomed to see, if *not* to read, page after page in our journals devoted to this subject, not because of any medical benefit to be derived, but because of the news value of the theme.

But there are other post-anesthetic dangers of far greater import. Hare, in Keen's "System," considering contra-indications to ether, says it should not be given in case of renal inflammation, especially if there are red cells in the urine; in case of operations on the brain or about the face; in case of any pulmonary disease. Then, almost in the same breath, he indicates his preference for ether as a routine agent. The Department of Therapeutics in *The Jour. of the A. M. A.* says: "Ether is contra-indicated if there is present disease either of the lungs or kidneys." And that is all concerning those organs. "The American Text-book of Surgery" recommends chloroform in preference to ether in case of *severe* bronchitis, emphysema, or asthma; *extensive* renal disease; or *marked* atheroma. These are the commonly named and obvious dangers, and as such they can be, and usually, but not always, are, avoided. I come now to a danger neglected because not so obvious, which I count one of the chief dangers from the use of an anesthetic. I refer to the post-anesthetic recrudescence of a quiescent tuberculosis.

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In this connection we must consider these factors: first, the prevalence of tuberculosis; second, the occurrence of the disease among those ill from other maladies; third, the rôle of local irritation and local reduction of vitality in its production and extension; and, fourth, the local effect of our anesthetics.

A sharp distinction has been drawn between clinical and anatomical tuberculosis, one fully warranted in the ordinary study of the disease, but it has been shown often and conclusively that so-called "healed" tuberculosis is not healed, that so-called cures are only symptomatic cures, and that any old tuberculous focus may, and most do, contain living and virulent bacilli. In the statistics I shall quote, the existence of the malady, if not active, is none the less actual; and in this discussion the matter of the present activity of the process is comparatively a minor consideration.

Schlimpert (*Archiv für Gynakologie*) found signs of tuberculosis in 61.8 per cent of a total of 3,514 female cadavers, in only 29 per cent of whom the diagnosis had been made during life. Nothmann (*Berliner klinische Wochenschrift*, Feb. 28, 1910) reports 47 per cent positive tests on children of three to five years, 56 per cent at six and seven, rising to 84.5 per cent between twelve and fourteen. Calmette (*Presse Medicale*, Paris, Aug. 9, 1911) reports results of the examination of 1,226 children. Positive reaction was obtained in 8.7 per cent under one year, in 22.1 per cent between one and two, in 53.8 per cent between two and five, in 81.4 per cent between five and fifteen, and in 87.7 per cent of those past fifteen. By far the great majority of these are latent, the actual death-rate from the disease being only a little higher than our own. Von Pirquet reports positive reaction in 70 per cent at ten years among some 1,200 children of various ages examined. Most of these records are based on the von Pirquet cutaneous reaction, and it may be well here to indicate the reliability of this test as applied to children. Von Pirquet himself found tuberculous lesions at autopsy in 123 of 124 children who had shown positive reaction during life, and he could find none in 161 out of 190 whose reaction had been negative. The autopsy experience of other investigators leads to the same conclusions, namely, that, while tuberculosis may be present though the reaction is negative, a positive reaction is practically proof that we have anatomical lesions, whether these be active or latent.

From the statistics given we may safely conclude that about 85 per cent of the poor in European cities are infected with tuberculosis before they attain the age of twenty. I have been unable to find any statistics regarding the prevalence of tuberculosis in America, but it is extremely doubtful whether we can claim special immunity in this respect; and if investigation were made, the results would probably be much the same as those quoted. In the rural districts the findings would be much more favorable, but, taking the country as a whole, remembering that 14 per cent of our deaths are due to this disease, I think an estimate of 35 per cent of our total population infected is sufficiently conservative.

Now, it is well known that tuberculosis reduces the vitality of the individual, laying him liable to all sorts of other maladies, and it is a presumption, clearly warranted, that nearly all disease-conditions will be found relatively more often among the tuberculous than among the non-tuberculous. Of some surgical conditions this is particularly true, for example, empyema and anal fistula; and in addition there is the enormous field of surgery for conditions purely tuberculous. Here, again, statistics are lacking, but if you will accept the first estimate above I will venture a second, namely, that 75 per cent of the patients coming to the operating-table have, or have had, some tuberculous infection.

We have all of us, with discouraging frequency, seen the onset, or *apparent* onset, of tuberculosis following measles or influenza, and the occurrence of a "common cold" as the initial incident of the disease is so frequent that it is commonly held by the layman to be the real cause. We hear, "He caught cold and it ran into consumption;" yet in many of these cases we know the patient was confined to a room, under good hygienic conditions, remote from the possibility of immediate infection. The disease was already present,—may have been present for years, latent, quiescent,—and it was fired up by the combination of local irritation and local and general reduction of vital resistance.

Chloroform, ounce for ounce in a given volume of air, is more irritant than ether, but in the proportions necessary and desirable for anesthesia ether is very much the more irritant of the two, both to the respiratory and renal epithelium. In this fact lies the reason that all the authorities recommend that chloroform be used in evident lung or kidney disease. In renal tuberculosis the use of ether so increases the danger as often to turn the balance against the patient; yet in some of our large clinics ether is used almost exclusively. The excellent results achieved in some of them must be attributed to refinement in operative technic, which may overcome the handicap of an error in anesthesia.

A number of investigators have shown that alcohol, chloroform, and ether reduce phagocytosis, especially for the pneumococcus, the streptococcus, and the tubercle bacillus. When we consider this fact, with the reduction of vitality due to the operation and the striking prevalence of tuberculosis, often not clinically evident, we may well fear to add the greater irritation of the respiratory mucosa consequent on the employment of ether, rather than chloroform.

This matter was brought home to me very forcibly during my hospital service. Three patients operated on and discharged as well came back within from three to six months and died of tuberculosis in the wards for incurables. One of these showed a few suspicious signs at one apex before operation. I wished to give chloroform, but the surgeon said, "Oh, give her ether. It's safer and we don't want her to die *on the table*." The other two patients showed no physical or clinical signs before operation. All three got ether. How many more of our ether patients developed active tuberculosis and died elsewhere we have no means of knowing. It is not surprising that surgeons in our larger clinics have failed to note this development, as the average stay of patients in our hospitals is only about twenty days and the difficulty of following the history of patients after dismissal is notorious. This, unfortunately, is especially true of those who do not do well.

The statistics usually given vary in showing ether from two to seven times as safe as chloroform, averaging about four times. These figures, however, are based wholly on records of deaths during the administration or directly thereafter; they take absolutely no account of the ultimate restoration of the patient to sound health, and I would like to inquire, "What is a man profited if he gain a 'successful operation' and die six months later of consumption?" It has seemed to me that the figures given express the relative safety of the surgeon's reputation, and the ultimate safety of the patient is in nearly inverse ratio.

In conclusion, let me urge these things: Examine every candidate for anesthesia thoroughly for evidences of cardiac, renal, or pulmonary fault; remember the omnipresence of tuberculosis; give the *patient* the benefit of the doubt, and, except with the most positive contra-indications, use chloroform.

DISCUSSION

Dr. E. L. Perkins (Sioux Falls): I am not in a position to criticise this paper in as intelligent a manner as I would like, not having made any special research into the relations, if any exist, between ether anesthesia and the development of a latent tuberculosis. I must admit that I am prejudiced against this form of anesthetic (chloroform), but possibly I am not in a position to judge fairly of the end-results of all forms of anesthesia. It is quite probable that, in the long run, in the ultimate course of any clinical case following ether anesthesia, tuberculosis may result where a latent chronic tubercular condition may have existed.

To the parturient woman chloroform can be administered with safety. On the operating-table I dare say that it is always a menace to the life of our patient, and the clinical practice today will bear out that objection. Granting that we may have a large loss of life resulting from tuberculosis after ether anesthesia, I wonder how many cases of chloroform anesthesia, had they been followed for a considerable period of time, would have developed liver lesions resulting in death? Very few of us have an opportunity to follow these cases to their conclusion and find out what the ultimate end may be. When the time comes for the patient to go upon the table the question before the surgeon is, what shall the anesthetic be? Statistics show conclusively that ether today is a safe anesthetic. I do not believe that the man lives who can give chloroform safely.

Dr. E. Klaveness (Sioux Falls): When Dr. Hart read his paper I could not help but think that in the advocacy of an anesthetic no man upon the American continent would care to stand up for the administration of chloroform. It is something unheard of. However, I take decided issue with Dr. Perkins when he says that the man does not live who can give chloroform safely. We use it in America, and Continental Europe uses chloroform; hence I do not think everybody has become convinced that it is so bad that it should not be administered at all. I have been taught chloroform from the beginning of my student days. I have used it to a great extent, and I have never had any untoward results, although I know that accidents will happen.

The fact that Dr. Hart has brought before us, namely, the deleterious effect of ether upon the respiratory organs, is something new to me, and yet, after all, I believe there is a great deal of truth in it. When one has gone over the records and made a study of life-insurance statistics and finds how prevalent tuberculosis is, and how it is found in cases least suspected, I am willing to admit that some people may experience an active tuberculosis after going through an ether anesthesia, at least when it is done as recklessly as it is done in this country. I shall add, further, that the surgeon who prefers to give chloroform must be thoroughly convinced that he knows how to handle chloroform as an anesthetic. There is a great difference in the way in which it is administered, but if you will allow a free admission of air and proceed slowly I have never seen chloroform produce any untoward results. I have given it a great number of times and have seen its use in continental Europe, and I am more than satisfied that the truth as to anesthetics on the whole is still far from correctly given, and certainly not as bad as presented to us in the existing mortality tables.

Dr. B. A. Bobb (Mitchell): One neglected danger of anesthesia among most physicians, notably in the country, is, that nearly every one will give chloroform, while if the patient is taken to the hospital more generally they give them ether. I think this fact has been demonstrated under all conditions, that ether is a great deal safer than chloroform. Another condition where we use chloroform and where we should use ether is in children three or four weeks old, but we nearly always give chloroform although ether is the safer of the two. There is no question but that chloroform can be used by a person who recognizes what the danger is and what appliances to use in cases of syncope, but often physicians do not recognize the danger, and when one slips away with chloroform it is usually very sudden, and they have no means of resuscitation, while with ether symptoms of danger manifest themselves for some time before syncope. We have used H-M-C in something over a thousand cases without a single deleterious result, and although we have not tried it out in "twenty-seven thousand" cases, yet we have had no deleterious results following its administration in over a thousand cases.

Dr. H. M. Freeburg (Watertown): I am not prejudiced in favor of either ether or chloroform, but I am surprised that I am not prejudiced in favor of ether because that has been taught at every clinic I have attended. I have given somewhat like a thousand anesthesias and probably three-fourths of them chloroform, and notwithstanding the fact just stated that one in seventeen thousand die from chloroform and one in twenty-seven thousand from ether, I believe chloroform is by far the safer anesthetic.

While we hear so much about ether being the safer anesthetic of the two, still we all know that nine-tenths of the patients given an anesthetic in this state are given chloroform. When we have one death from chloroform there is a great ado made about it, and yet we know from personal observation that for each death from chloroform anesthesia there are many cases that have died from pneumonia following ether administration after safely standing the shock of the operation.

Dr. H. M. Hohf (Yankton): I do not understand why men in country districts with a small anesthetic practice will resort to such an anesthetic as chloroform. We used to use chloroform and think it was the only thing. Our patients went to sleep nicely and woke up splendidly, but it took two deaths to make us realize that chloroform was not the thing to use. Why is it that we in country districts are sticklers for choloform and all the other side-issues mentioned here today? The danger lies in the fact that we do not know where we are at because danger signals are masked by the H-M-C or X. Y. Z. side-lines so frequently given in country practice. You can not know what is developing when they are used, and I would suggest that all the side issues be not given.

I believe that one in three persons present has had a death or knows of one by chloroform. It is not necessary for us in a little country practice or in a little hospital to learn the lesson through a death as we have learned it. Since these deaths have occurred it is used only in certain cases, as has been mentioned; in dislocations and injuries where it takes but a short time to administer, but in other cases we have found best to let it alone. It is a dangerous drug to use except in the hands of an expert.

Dr. W. A. Kriesel (Watertown): I believe that there is one thing in regard to anesthetics that has been left unsaid, and that is, that they must be given intelligently, and that means that you must understand how to give an anesthetic as you must understand how to do a laparotomy.

I believe one of the reasons for the mortality by chloroform is that every Tom, Dick, and Harry is giving it because it is pleasant and easy to give. The man who gives an anesthetic should know something about it, and he should thoroughly know the condition of his patient before he administers it. Another point in regard to the giving of an anesthetic that was brought out in Dr. Hart's paper is, that we do not examine our patients closely enough. We are not thorough enough in that regard.

I think Dr. Hart's paper is one of the best I have heard on that subject. I think we should get it out of our heads that no anesthetic can be used as safely and even more so than chloroform.

Dr. Thomas Cruickshank (Vermillion): I have heard considerable on both sides of this matter. During all the years that I was in St. Louis I never saw ether given as they used chloroform and I never saw any bad results. Now we hear that no one should use chloroform. I am getting mixed up. I find chloroform in small quantities useful in certain obstetrical cases, and I occasionally use it in minor surgery, and so I suppose some prefer ether and others chloroform and they use it as they see fit. But how are we going to come to a definite conclusion of some kind? I am getting scared. I shall not dare to use chloroform in my next obstetrical case and I do not know whether I dare use ether. However, I believe in one thing and that is that skill in administration has a great deal to do with the danger or safety of any anesthetic. I saw one man who went to work to give chloroform and he didn't have any mask, so he found a clean handkerchief and poured so much chloroform over it that it was perfectly wet, then he put it over the nose of the patient. The patient is alive, but by the grace of God, and not on account of the skill of the anesthetist.

I believe the anesthetist ought to be as skilled in his profession as the physician is in his. If I should be unfortunate enough to have an operation performed on myself I wou'd like to know something about the one who is to do it and I would also like to know something about the one who is going to put me under. I think the life of the patient is more in the hand of the anesthetist at the time than in the hand of the surgeon. I have seen one case, as the doctor states, where they did chloroform a man to death, but it was an idiosyncrasy. They hardly made a start before the patient was dead. I shall be very grateful to any man who will tell me what I am going to do to be on the safe side in this matter. I do not feel at all satisfied as to which anesthetic is the safe one to use. I do not even know whether any should be used at all.

Dr. James Roane (Yankton): The statistics on the subject of relative mortality from chloroform and ether are differently given by different authors. Probably one of the most reliable estimates is what Dr. Cruikshank stated, one in three thousand from chloroform, and one in seventeen thousand from ether. Dr. Crane, according to these statistics, might administer chloroform in two thousand nine hundred and ninety-nine cases successfully, and the three thousandth case might die.

The reason why there are so many more cases of death from chloroform is because chloroform is used much more extensively in operations in rural districts than ether, and the reason of this is because it is administered with so much more ease. A patient comes under the influence of it more quickly and more easily, and when a patient comes out from under its influence it is usually without the bad after-effects which so often follow the use of ether. Where the mortality statistics are so small, as when only one in three thousand dies, chloroform would be considered a very safe anesthetic, but for the fact that ether is much safer. We must compare the two. Is chloroform safer than ether? At present the almost universal verdict of the surgical profession is that ether is the safer, and for that reason it is recommended in preference to chloroform.

Dr. R. S. Hart (Essayist): The paper has provoked a general discussion, which has extended somewhat beyond the scope of the subject. The particular matter I wished to bring up, is the appearance following anaesthesia. I recognize the fact that this matter is somewhat new to most practitioners, and it would have been better if the subject had been presented by those with wider experience and higher standing in the profession. I have been unable to find in the literature the result following anesthesia as outlined in my paper, but I believe it is a matter well worthy of notice.

In regard to certain points made: There are certain dangers during and following *any* anesthesia. Delayed chloroform poisoning is but one of these and it is comparatively rare. We know there are means of combatting the acid intoxication, which is the chief feature of this accident, and reasonable care will largely prevent or control it.

One of the gentlemen has referred to a death during chloroform anesthesia in a dental chair. It has been shown, times without number, that it is extremely dangerous to give chloroform in an upright or semi-upright position, and deaths under such circumstances are not the fault of the chloroform; they are distinctly the fault of the man who administers it in such a position.

Now, in regard to the statistics Dr. Bobb has given: I never found any so favorable as he quotes for either drug. The most favorable I have been able to find showed 1 death in 16,000 by ether and 1 in 7,000 by chloroform, and I believe these statistics are too favorable to ether. The most adverse report I found gave 1 in 2,500 under chloroform and 1 in 8,000 under ether. These figures, as I have quoted them, refer to the *immediate* danger, and while it is essential that we consider this feature, it is no less necessary to bear in mind the more remote danger of serious damage to the renal and pulmonary structures. Let us accept for the moment those adverse figures given. According to them we lose, under chloroform, one-twenty-fifth of one per cent of our patients; under ether, one-eightieth of one per cent, a difference of about one-fortieth of one per cent. According to the more favorable statistics the difference is only about one-one-hundred-twentieth of one per cent. I believe the deaths from tuberculosis directly traceable to ether are more than 1 in 12,000 anesthesias or even 1 in 4,000. With the extreme prevalence of the malady in the latent form, the danger is so great that the relative immediate safety of ether is comparatively insignificant. Again I urge the routine use of chloroform.

POST-RHEUMATIC ANKYLOSIS*

By Ralph St. J. Perry, M. D.

PARKERS PRAIRIE, MINNESOTA

The subject of post-rheumatic ankylosis may seem a very simple one to present to a state medical society, yet it is its simplicity which has incited the act; and possibly it is because of its simplicity that others have neglected it. Several things relative to this subject stand out prominently: First, it is a condition quite commonly met with; second, it is one almost as commonly neglected by practitioners; third, it is one very little discussed in our medical books as connecte with rheumatism; fourth, these cases form class which has been appropriated by the osteopaths, chiropractors, Christian scientists, magnetic healers, and other manipulators of the bod and mind. It is a fact that many practitioner seemingly do not understand what can be don to remove this disability or know how to trea such cases.

Let me cite three cases, amongst others, whic have provoked me into writing this paper:

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*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

Case 1.—I was called upon, as a disinterested witness, to examine a man who was the plaintiff in a malpractice suit. The history of the case showed that while convalescent from an attack of articular rheumatism, the man undertook to climb a ladder, fell, and sustained a fracture of both bones of the leg just above the ankle. The fracture was compound, comminuted, and complicated, but all who saw the case agreed that there was no involvement of the ankle-joint.

The attending surgeon applied a plaster-of-Paris dressing and followed a line of treatment which at that time was considered competent and skillful. The result, so far as the fracture was concerned, was good, but there was an ankylosis of the ankle-joint. This the patient objected to, and the surgeon refused to attempt to break it up, evidently fearing damage to the leg at the site of the recently united fracture. The patient then fell into the hands of a surgeon who ran a surgical institute. He put the ankylosed ankle through a course of Zander-Taylor machine-treatments and soon eliminated the ankylosis. As there was no amorous affinity between the two surgeons the result was that the original attending surgeon was sued for malpractice, and, while the suit was dismissed on the evidence, it was shown that the ankylosis was really due to the pretraumatic rheumatism, and that such cases could be successfully treated without the violent measures then considered essential to a cure.

I saw this patient again eighteen years after the restoration of the joint-function, and the part was in good working order and had been all that time.

Case 2.—A man was brought to me with his leg ankylosed at the knee in a right-angle position. His history was that he had been confined to bed for three or four months with acute inflammatory rheumatism, following or during which the knee became ankylosed, and for three months prior to consulting me he had been hobbling around on crutches. His attending physician had told him his only chance of returning to work was to have the leg amputated at the knee and an artificial one substituted therefor. An examination disclosed very plainly that the ankylosis was neither osseous nor serious, and in half an hour after the disabling fibers had been loosened up the man was on the street without crutches and walking about as well as ever. A counter-irritant liniment was all that was used as an after-treatment.

Case 3.—A young woman suffering from ankylosis of the knees, ankles, toes, elbows, wrists, fingers, and spine, associated with digestive and menstrual derangements, was taken under treatment. Her history showed several attacks of rheumatism during the previous five years and her afflictions were laid to this factor. The ankylosis was of several months' duration, and no promise of a cure was held out to the patient, in fact there was much doubt as to any benefit. The patient's faith was founded upon results that she had seen and heard of in other cases. Dry hot air baths, running in temperature from 225° F. to 250° F., of half an hour duration, were given every other day, followed by manual massage. Thiosinnamin was administered hypodermatically every third or fourth day, and special attention given to the elimination of alimentary waste.

After two weeks' treatment a very slight, but encouraging, improvement was noted, and at the end of six months, during which time about fifty treatments were given, the normal spinal curvature had been restored, and there was fairly good motion in all of the extremities. Constant use has so increased this joint-freedom that to-day, after fifteen years, the patient claims she has as good use of her arms, hands, legs, and feet as she ever had.

These three cases show the indifference and timidity of one surgeon, the ignorance and near-malpractice of another, and what can be accomplished in other cases where treatment is persisted in, aided by the faith and co-operation of the patient. These three cases, being under observation from fifteen to eighteen years, also show that the benefits secured in such cases are not always acute and transitory, but may be chronic and persistent and increase with the continued use of the parts.

Ankylosis may follow any form of articular rheumatism, simple, gonorrheal, or "gouty," in any person of any age or sex, and the diagnosis, after excluding other diseases, involves chiefly the kind of ankylosis, its degree and duration. In recent cases the ankylosis is fibrous, and there is more or less motion in the joint. As the disability ages there is a tendency to ossification and consequent loss of motion, until finally we find a true bony union and absolute rigidity of the joint. In a few cases osseous ankylosis takes place primarily.

The treatment of post-rheumatism ankylosis is prophylactic and curative. The former involves the treatment of the acute attacks of which the ankylosis is the sequel; and, as we all know, no disease in our repertoire is so elusive as rheumatism. The physicians of all nations, all ages, and all pathies have failed to produce a specific. A method of treatment which proves effectual in one locality is unsuccessful in another, and what cures one patient may fail to cure his homologous twin. Every rheumatic patient is a species to himself, an individual problem to be solved only by experimentation, and a subject for "being done good."

Just at present the dominant remedial agents are salicylic acid (in some form), absolute rest of the joint, climatic changes, and dietetic regulation. The desiderata in treating articular rheumatism are rapid subsidence of the inflammation and rest of the joint. The inflammation seems to be better controlled by the salicylates than by any other form of medication. The antirheumatic vaccines are as yet *sub judice*. Recently I have treated several cases satisfactorily by giving from two to three drachms of sodium salicylate *per rectum*. Rest is best secured by fixing the joint in an extension appliance. As soon as the inflammation has *entirely disappeared* from the joint motion may be permitted. The physician should himself frequently manipulate the joints that he may be sure the patient is not neglecting or slighting the movements.

In the incipient and milder forms the psychic element plays a part. The patient thinks there is going to be a stiffness and favors its development by maintaining immobility when there should be motion, and it is the physician's duty to counteract this mental attitude by suggestion. This can usually be done by a straightforward, heart-to-heart talk, especially if the patient has any faith in the physician. In many cases this psychic condition was originally merely one of timidity, associated with sensitiveness to pain, and constant nursing of the idea has permitted the dreaded, anticipated possibly to develop into a reality. In several such cases I have seen hypnotism used effectively, the patient being put into a hypnotic sleep, the existing stiffness loosened up, and a post-hypnotic suggestion then given that thereafter there would be no pain or stiffness in the parts and that the joint can be used as well as it ever could.

The corrective treatment can be divided into the manipulative, medicinal, operative, and psychic. Manipulation may be either manual or mechanical. The manual may be gentle and prolonged in character, but more satisfactory results in cases involving the extremities can be immediately and effectually secured by using forcible flexion and extension (*brisement forcé*) breaking up all fibrous adhesions and giving the joint the fullest possible motion at one treatment.

Such forcible manipulations may require an anesthetic, for which purpose ethyl chloride serves most admirably and should be followed by local aplications of pounded ice around the joint, or, if ice is not available, by the use of some efficient counterirritating liniment. The use of a liniment does no harm, may do some good, gives the patient something to occupy his mind, and encourage the desire to get well.

In spinal cases and in others where force cannot be used or is undesirable, we must fall back upon the slower manual movements or resort to the manipulations of the Zander or Taylor machines, vibratory massage, the dry hot air baths and vacuum treatments. Several forms of the Zander and Taylor machines are on the market, but the physician can make his own if of a mechanical turn of mind and desirous of eliminating expense.

In connection with and adjuvant to these methods of treatment there are certain drugs which have proved of value in these cases and are worthy of trial. Trunecek's serum has been used in many cases and found to be an efficient adjuvant, though not in itself curative. Its action is to prevent sclerosis and ossification. Thiosinamin, in the form of the less painful "fibrolysin," may be used hypodermatically once every three or four days as permissible. This remedy causes an absorption of cicatricial tissue and should not be used in any case where the patient has been subjected to a laparotomy or has cicatricial tissue in any part of the body where visceral, muscular, or other function is dependent upon the integrity thereof.

In Europe we finds the "bads" are prominent resorts for the treatment of these cases, and in the United States they are gradually coming more and more into favor. Unfortunately, many of our most efficient springs are handicapped by their venereal affinities, and the visitor thereto is greeted at home by a suggestive grin or a look of pained surprise. Without desiring to pose as a publicity agent, I may say that I have seen some remarkable cures follow a course of baths at what is known as the Weyler Spring at Santa Fe, on the Isle of Pines, Cuba. The spring is private property, is not exploited, and its use is free to all who conform to a few simple regulations. Its moral tone is without blotch or bar sinister.

In aggravated cases of post-rheumatic ankylosis where there is osseous union, it becomes necessary to resort to arthroplastic operations. This phase of joint-surgery which was once so long looked upon as formidable, unsuccessful, and useless, has been modified and improved until now it is an easy task for any surgeon of reasonable skill to open a joint, remove the osteophytes, place in position the interposing flaps of fascia or other tissue, and close the wound.

When an arthroplastic operation is correctly performed in a suitable case, and the proper after-treatment carried out, there is a reasonable assurance that the patient will have a freely movable joint which will be free from pain, support weight, and withstand traction.

DISCUSSION

Dr. Christian Johnson (Willmar): I want to congratulate Dr. Perry on his excellent paper. It is along the lines he has pointed out that we must counteract the sects in medicine, such as the osteopaths, the chiropractics, and Christian scientists. I would heartily second the suggestion which is implied in the presentation of this paper, that we country doctors especially develop the line of treatment he has described, and, if we have faith in ourselves, we can do a whole lot more than we think we can for these cases. If we have faith in ourselves and attempt to treat these patients in the proper spirit and with the proper understanding and with a reasonable amount of common sense, we can do just as Dr. Perry told us he has done, and relieve many of these patients and thus reflect honor on our profession and defeat the sects.

Dr. A. Soderlind (Minneapolis): I would like to ask how many of the members have used phylactogen in the class of cases that have been described by the author of this paper?

Dr. R. E. Farr (Minneapolis): In answer to the last speaker, I will say that in a recent issue of the *Journal of the American Medical Association* there is an answer to a correspondent who wrote to the *Journal* in regard to phylactogen, an agent gotten up and sent out by Parke, Davis & Co. The correspondent wishes to be informed with regard to the use of this material, he having refused to use it because its ingredients were not known. The editor in this reply states that this vaccine is analagous to a "gunshot" prescription gotten up with the idea of trying to combat the bacillus present by injecting the vaccine made from mixtures of several bacilli, in hopes that one of them might be the right one. The editor strongly advises against its use.

With regard to Dr. Perry's paper: I would say that I believe the doctor is more or less unfortunate, according to my notion, in selecting a title. He has very closely described cases of metastatic arthritis and not "rheumatism" at all. Bony ankylosis does not follow rheumatism. The treatment offered for these old cases is excellent, but, as Dr. Murphy has taught us, the conditions which he describes should not be allowed to prevail. They should be treated properly in the beginning, and mal-position and ankylosis could, and should be prevented. The use of the term rheumatism is unfortunate in applying it to the arthritides.

A Member: I do not think this subject appeals entirely to practitioners in the country. Every practitioner, whether in the country or in the city, has his full quota of these rheumatic cases, these chronic rheumatic impossibilities. I think we are prone to turn them away if we feel we cannot solve the mystery. We give them about as much attention as we do the ordinary neurasthenic.

I want to say a word or two with reference to the use of phylactogen. I tried it in one case of the type that has been described. A woman came into my office and wanted to know whether or not she could be relieved. I told her that there was nothing that would give her relief except perhaps phylactogen. This woman had what has been described by a certain Boston contemporary as *subdeltoid bursitis.* I told the woman that, if she had the money to pay for the phylactogen, I would try it. It cost her about eighteen or twenty dollars. She remained in the hospital for about a week, and during that time I gave it according to the directions, and for about six weeks or two months she was apparently free from any symptoms of the old arthritic trouble. She went away for a vacation, returned, and as soon as she returned there was a recurrence of the old condition. At any rate, the phylactogen had a temporary good effect; but I fancy this case was not one of the typical cases in which to recommend it.

A Member: In regard to the phylactogen treatment: I have used it in twenty cases extending over a period of eight months, particularly in cases of arthritis, post-ankylosis, as Dr. Perry referred to, and in acute articular rheumatism. I gave it in 10 c. c. doses for ten treatments with satisfactory results. The results were satisfactory in all cases. I have not had any recurrences in any of the cases in which I have used it.

Dr. Emil S. Geist (Minneapolis): We must not forget that in some cases ankylosis is liable to be permanent, and very frequently those of us who see many of this type of cases find the joint ankylosed in poor position. In any chronic joint condition, which is liable to be followed by permanent or temporary ankylosis, we must consider, during every phase of treatment, the best possible position for use in case the joint should remain permanently ankylotic. I have seen cases in which results might have been much better if the physician, in the treatment, had only remembered to keep the limb in the best possible position for function after the acute or chronic articular process had subsided. A stiff joint which is in good position is frequently not the hardship that many suppose. That is something we must bear in mind in taking care of these cases.

One of the best features of the doctor's paper, which impressed me, was the emphasis placed on the value of mechanotherapy, and the appreciation of the fact that we neglect to recognize that massage in the after-treatment, combined with mechanotherapy, has much to do in aiding and hastening the cure.

Dr. David Owen Thomas (Minneapolis): I wish to congratulate Dr. Perry for bringing before us a subject in which most of us have had some experience; but it is seldom that we see these cases from their incipiency, for the disease becomes established as they oscillate between physicians, mineral springs, and home remedies.

I have treated a few cases of chronic rheumatism attended with partial ankylosis, which were greatly benefited by the use of anesthesia to restore the motility of the joints. In one case the shoulder-joint was so impaired that there was no motion except that of the scapula. After restoring the action of the joint under anesthesia, and keeping up daily exercise and the use of the salicylates, the patient fully recovered.

I have also used anesthesia with benefit even in a case of gonorrheal arthritis. By breaking up old adhesions and the use of hot-air apparatus one patient was enabled to walk and feed himself who had been helpless through disuse of his elbows and knees.

I have lately used fibrolysin hypodermically in a case with marked stiffness and fibrosis of the knee-joints. There was no noticable improvement at the time of treatment, but when this was followed by a prolonged course of potassium iodide the patient experienced a marked improvement.

BLOOD-VESSEL ANASTOMOSIS*

By J. Frank Corbett, M. D.,
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MINNEAPOLIS

The first authentic description of any blood-vessel surgery is an account of a transfusion by Jean Denis, in 1666. While transfusions were by no means rare in the period immediately following this date, they gradually fell into disrepute, for reasons the reader need not be told. In 1759 a surgeon by the name of Hallowel, by some peculiar good fortune, sutured a tear in the brachial artery. Fortified by many experiences, it remained the opinion of the medical profession for nearly a century after this, that the field of blood-vessel surgery was a "noli me tangere," until Eck, in 1877, succeeded in anastomosing the vena cava to the portal vein. Eck's success at this time was probably due to the fact that he anastomosed vessels without attempting to interrupt the blood-stream coursing through them. The free access of blood to the operative field, I believe, made success possible, even with faulty technic. The methods of Eck were applied, in 1881, by Francois Frank in anastomosing the femoral vein to the femoral artery. This operation was sometimes followed by a successful outcome.

In 1889 Jassinowski demonstrated that the carotid could be sutured. Almost simultaneously Tansini devised a horn clamp for approximating the endothelial surfaces of the blood-vessel. This was improved upon by Quirolo in 1895, again reported by Payr in 1900, and finally by Lepinasse and Eisenstaedt. The essential technic employed by all of these men was that of co-aptation of the endothelial surfaces by some mechanical appliance. In 1894 Abbe anastomosed the carotid by a glass tube. This method of procedure has lately been revived by Brewer and Leggett. Three years later Murphy anastomosed vessels by telescoping one into the other. To Gluck, whose efforts extend from 1883 to 1898, the credit of having first succeeded in transplanting a portion of the carotid must be given. Carell, in 1902, made repeated successful anastomosis. From 1902 to the present time, Carell has established the principles of blood-vessel suture so thoroughly that, as he states, anyone who will observe them can perform these operations. I have found that these principles must be followed absolutely, and that a violation in a single instance of any one of these invariably leads to failure.

The first principle to be observed in blood-vessel work is absolute asepsis. The preparation of the skin, the protection of the field of operation by towels clamped to the edges of the skin, and asepsis on the part of the operator, are vital factors in this part of the work.

To illustrate the remaining principles, I will now carry the listener through the various steps of blood-vessel transplantation.

The vessel to which we are to anastomose another is first laid bare. This must be done by clean, sharp dissection. At the time the dissection is made, as much of the areolar tissue in the vessel sheaths must be removed as is possible. Having laid bare the vessel for one inch or more, serrefin clamps are applied. These must not injure the inner coat of the vessel, else thrombosis will occur at the site of their appli-

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*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

cation, as has happened in one of my early failures. Having applied the clamps, the vessel is cut in two very carefully. It will retract to a wonderful degree, and over the ends of the cut vessel there will unfold a little curtain of adventitia. At this stage it is customary to wash the field with normal salt solution, and carefully dry the area with gauze. The object of this is to remove fibrin ferment that occurs in the exuded fluids. The field is then flooded with melted vaseline. This keeps the ferments from getting on the hands of the operator. Then a black cloth, made of silk and wet with normal salt solution, is laid over the field of operation. The ends of the vessels must be next freed from adventitia. This can be done by drawing the adventitial cuff over the end of the blood-vessel and cutting it with sharp scissors. The ends of the vessels, both of the operated animal and the transplanted vessel, must be freed for a considerable distance from adventitia, as we call the loose areolar tissue about the vessel, or otherwise this will become interposed into the line of suture and cause trouble. The inside of the vessels are then thoroughly washed with Ringer's solution, to remove any stray clots whose presence would spoil the operation. The anastomosis proper is commenced by attaching one cut end of the segment of vessel to be anastomosed to the vessel of the host by three guy-rope sutures. These hold the walls in apposition at three points. The posterior one is usually inserted first, as may be seen in the illustration. To do this the needle enters the lumen of the segment from the outside, and then leaves the lumen by transfixing the wall of the host. When a guy-rope suture is inserted, one-half of the thread is drawn through and then tied on the outside of the vessel. The half of the thread bearing the needle is used for sewing, while the other half is used for a guy-rope.

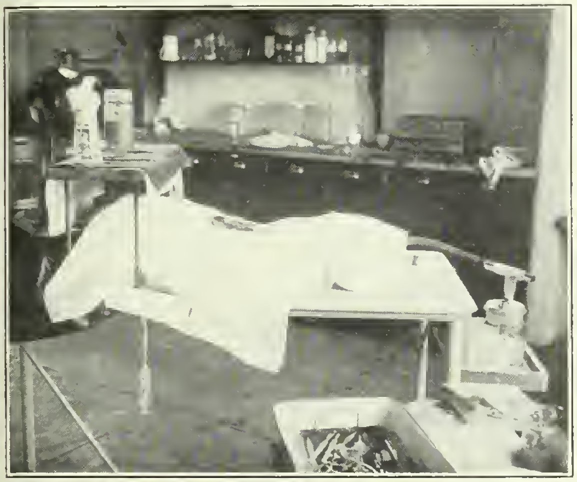
Fig. 1. This picture shows the anesthetizing apparatus used in the laboratory of experimental surgery. This renders anesthesia safe, because it is automatic, and thus an overdose of ether is impossible.

A difficulty often encountered is the tendency of these delicate threads to twist upon themselves. This difficulty is avoided by catching the guy-ropes in artery clamps. The weight of these is sufficient to maintain the line of suture in a suitable manner. This leaves both hands free to apply the suture, and, in order to avoid a tendency of the thread to twist, the slack must be held in the left hand and the two threads left separate while the right hand is introducing the needle.

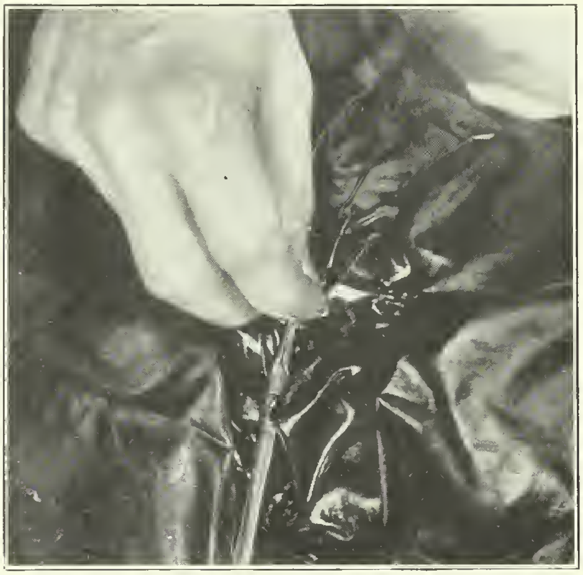
Fig. 2. This picture shows the first guy-rope introduced and held in place by the weight of the forceps. The second guy-rope is being introduced.

When the line of suture has been carried as far as the second guy-rope, it is tied and the process repeated. Before sewing the vessels completely, it is advisable to wash out their lumina with Ringer's solution, using a Gentile syringe. Following the re-establishment of the circulation in the anastomosed vessel, it will be frequently found that there occurs some leakage along the line of sutures. To control this, first gentle pressure is applied to both lines of suture with a piece of dry gauze. If the hemorrhage does not cease, additional sutures may be introduced. This is a dangerous procedure, however, because we are apt by suture at this time to introduce portions of adventitia into the lumen of the blood-vessel. This was once a definite cause of failure in what otherwise seemed to be a perfect operation.

Nature's provisions have all been to safeguard the individual from hemorrhage. These safeguards in place of aiding the surgeon in blood-vessel transplantation and repairs, serve only as stumbling blocks. Therefore my failures have been many in applying the principles of Carell, and I will enumerate their causes so far as I know.

1. Too long storage of blood-vessel.

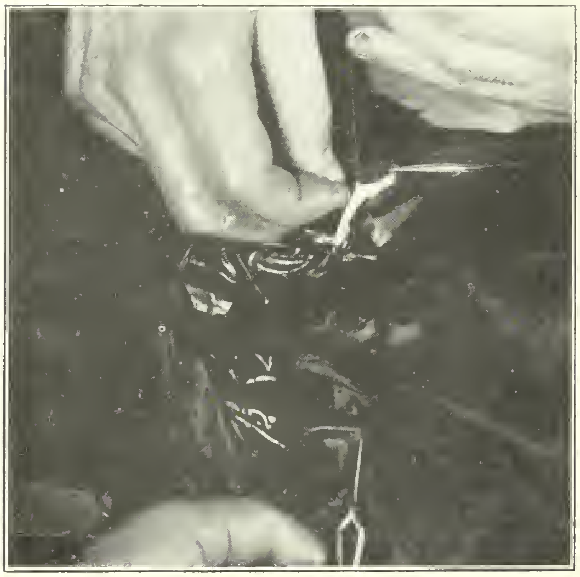

Fig. 3. This picture shows the guy-ropes introduced so as to maintain traction on the suture line by the weight of the clamps. The needle has pierced the coat of the vessel for the first stitch of the running suture.

2. Interpolation of adventitia between segments of vessel.

3. Failure to remove small clots and fibrin ferment from inside the vessels.

4. Traumatism of endothelium of blood-vessel by clamp.

5. Drying of endothelium resulting from tardy application of vaseline.

6. Too much time in operating.

These failures were due to disregard of fundamental principles, and not to mere mechanical technic. As Carell states, the technic is simple; the principles difficult to master. With a thorough knowledge of these principles, and a complete application of this knowledge in every detail, success should attend the suturing of a normal vessel.

The application of blood-vessel work today seems limited to the following fields:

1. Repair of blood-vessels accidentally torn, and free from thrombosis.

2. Artery to vein anastomosis where the artery has been destroyed by mechanical violence or surgical interference.

3. Transfusion.

In addition, transfusion is only applicable:

1. To cases of severe and extreme anemia from hemorrhage.

2. To cases of incontrollable hemorrhage from jaundice or hemophylia.

3. To cases of shock.

DISCUSSION

Dr. J. E. Moore (Minneapolis): Dr. Corbett's paper reminds us that the idea of operating upon blood-vessels is a very old one. At the present day we have simply taken up the suggestion, which was made over three hundred years ago, and developed the technic. This is true of every great surgical undertaking. The principle is first suggested, and then after a series of years, varying from a very few up to hundreds, we develop the technic so as to make the suggestion a practical one. The same was true of abdominal surgery, which has all been developed within my experience in the profession. During my student days I never saw an abdomen opened, but suggestions were made all the while at clinic of the possibility of the development of such operations in the future, and since that time our wonderful technic in abdominal surgery has added more to the glory of surgery than all things done before. After having accepted the principle, Dr. Corbett demonstrates that all that is necessary to make the application is a refined technic, which he has evidently acquired.

I discussed this topic many times with the late Dr. Senn, who did a great deal of work along this line. His great difficulty was to avoid thrombosis. That difficulty seems now to have been overcome, and it is only a question of the practical application of the operation. Dr. Corbett, like all reliable workers along this line, admits his many failures and points out his mistakes, which he has largely overcome. Brilliant as this achievement is, it would seem at first blush that the practical application of blood-vessel surgery would be limited to a very narrow field, and Dr. Corbett suggests but three possible applications. Upon thinking over the matter, however, one can think of many more applications to be tried out, and I have no doubt but that in future there will be made many applications of this work of which we do not dream at the present time.

The one possibility of this work which impresses me most is, that it may aid us in the transplantation of whole organs where the blood-vessels distributed to the organs are small. Carell has already applied it to the kidneys and to the extremities where the blood-vessels are large. Efforts have been made to transplant ovaries, thyroids, and other organs, but the benefit derived therefrom has been but transient because the organs transplanted without their own blood-supply soon atrophy and become absorbed.

It would seem that in the future by this beautiful technic, which is now developed for the anastomosis of blood-vessels, whole organs may be transplanted by removing with them a near-by large blood-vessel and making an anastomosis between this vessel and a large one of the recipient, which would furnish an independent circulation to the transplanted organ and thus preserve its integrity and function.

Dr. A. A. Law (Minneapolis): I have been privileged to see and be associated with some of Dr. Corbett's work, and therefore I am especially enthusiastic over his splendid paper.

The men who are doing experimental surgery blaze the way for the clinicians who are tremendously in their debt.

Most of us can remember when intestinal surgery began to leave the field of uncertainty and finally left behind the host of undesirable special procedures and mechanical appliances to settle into definite lines of technic. So with blood-vessel surgery, it is gradually crystalizing until now the accepted procedures are the use of the suture as dictated by Carell or the Crile canula or some modification of it.

J. B. Murphy's classic paper, published in 1897, had much to do with calling the attention of the world to the possibilities of blood-vessel surgery, and the profession has to thank him. Joani, Carell, Payr, Crile, Jaboulay, Matas and a host of others for experimental work which has settled the feasibility of anastamosis, transplantation, and transfusion.

It is trite to say that this surgery is limited in its field; for, beyond repairing traumatised vessels, either by direct suture, transplantation of a segment of another vessel, or lateral anastomosis, its utility is limited, although reports of arterovein anastomosis are encouraging.

Matas' procedure in aneurism and a venous segment implanted into the artery are meeting with deserved attention.

No question of the value of direct transfusion by any of the various accepted methods remains in the minds of those who have used it, but here again the class of cases which should be subjected to transfusion is shrinking until it is confined almost, if not wholly, to those of severe hemorrhage.

One who has not done this experimental blood-vessel work can have little conception of the exquisite delicacy of the technic, which is almost microsopical in fact, and he must needs be conversant with failures and unhappy end-results to appreciate the religion of exact technic required. It is not work to be attempted by the tyro in surgery.

THE NEW PUBLIC HEALTH—SEVENTH PAPER

THE PUBLIC HEALTH ENGINEER

By H. W. Hill, M. B., M. D., D. P. H.

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LONDON, ONTARIO, CANADA

The preceding article indicated the lines of personal defense against infectious disease which are available to the private citizen for his own protection through his own efforts.

The present and succeeding articles will deal with community defense,—those operations which, if properly conducted by communities for the good of all, would make unnecessary the burdensome efforts of individuals to protect themselves.

The three great community measures for the abolition of infectious disease have been listed in increasing order of efficiency as—

1. The protection of all public routes of infection, public water supplies, public food supplies, public milk supplies, and public flies. This is now done in some places to some extent. Usually it is but half done, chiefly for lack of proper understanding of what are real protective measures, or of proper organization for their execution; too often, also for lack of proper men to carry them out.

2. The physical supervision of known cases of infectious diseases. This also is often now attempted. Indeed it is, on paper, the most developed of all. But its efficiency is cut down by lack of reporting, concealing of cases from physicians, etc., and especially by lack of sufficient trained experts in epidemiology to do the close-to-the-ground daily work.

3. The sociological supervision of all infectious persons, already outlined in previous articles.

The first of these items is dealt with here.

For the protection of the public routes of infection three things are needed: proper physical construction, to exclude infection; proper physical operation, to maintain this exclusion; and the supervision of the human factor,—"the man behind the gun." A locomotive may be built perfectly and be kept in perfect running order; but the locomotive engineer himself is still the soul of the machine. Perfect physical equipment and perfect physical maintenance of public utilities related to the spread of disease, are enormously important, yet they are less important than the men who are to be in actual control of the actual operations. No better illustration of this can be offered than the fact that the milk supply from tested highbred cows, palatially housed, scrubbed, and vacuum-cleaned, has carried disease and death to its consumers, because one man engaged in handling the milk conveyed infection to it by the intimate personal contact which no organization or mechanism can wholly avoid.

Some of the worst water epidemics we have ever had were due to the human factor failing at the critical moment. This failure of the human factor, which is a commonplace in accidents by rail or boat, applies equally to all branches of public health, although the usual belief is that almost any person is good enough to conduct such operations.

The reason for this commonly accepted belief is probably that public health work for the prevention of disease, or for the general physical advancement of the race, is often confused with certain measures which make merely for luxury or comfort; and it is human nature to look down upon those who provide such service. We forget that by our slaves we rise and by our slaves we fall. Too often they and their procedures are neglected so long as comfort and convenience are secured through them without too much trouble on the part of those who are supposed to enjoy the fruits of their labor.

To define public health engineering in the light of the new public health principles, it must be defined as such work as deals through the physical construction and operation of physical surroundings and mechanism with (a) the prevention of disease or (b) with the advancement of physical bodily welfare. If we should include also, as is sometimes done, all such operations as conduce, however indirectly, to any kind of "racial advancement," we should be compelled to include all engineering works, architecture, street paving, acoustic properties of public buildings, the size of doorways, fire-escapes, bridges, and railways, every form of modern artificial surroundings, and with them their corollaries, noise, the smoke nuisance, etc.

The line between true sanitary measures and those for securing comfort and convenience must be drawn somewhere, and it must be remembered that all "racial advances" are by no means advancements of public health. The railroads are of great sociological importance to the race, but they often carry disease where disease would not have traveled otherwise. Every advance which leads to greater prosperity leads to more intermingling of people and to wider social relations and so involves a wider exchange of bodily discharges. The installation of a public water supply system adds great comfort, convenience, decency, and physical welfare, but it also provides a route of infection which leads directly into every home. If you put all your eggs into one such basket, you must *watch that basket*. A sewerage system, by getting rid of outdoor toilets, greatly conduces to decency, comfort, and cleanliness, and even obviates one danger of disease (carriage of toilet discharges by flies from the outdoor closet); but it also concentrates all those discharges into one foul union and the disposal of this often endangers other communities. There is no real advance in transferring the burden of infectious disease from one community to another by passing the sewage on from one water supply to another. Hence the true province of the Public Health Engineer is not the mere advocacy and construction of great engineering enterprises, but, rather, the supervision of the construction of such, to see that the public health harm they may do, if the public health view be neglected, is properly avoided, so far as physical construction or operation may avoid it.

The Public Health Engineer is not therefore, or, rather, should not be, merely what the popular imagination makes him, a man of sewer pipes and concrete; of water-meters, manholes, and pumps. The New Public Health Engineer will be a man of keen eye to see those features in all community construction work which may conduce to greater exchange of discharges, a man who knows *just* what is needed for prevention of disease in such ways, and therefore can both provide proper precautions and at the same time avoid unnecessary and expensive precautions. The civil engineer has been defined as he who can do for $1.00 what any fool can do for $4.00. He is a physical economist. He insists on physical safety, but *within that limit* knows best how to achieve the needed safety without undue expenditure. The Public Health Engineer, dealing with water supplies, sewage disposal, etc., does just this thing. He guarantees sanitary safety, and *within that limit* he guarantees it for less money than the ordinary builder. Any keen student of infectious diseases can generally see the grosser faults in a supply which permit infection. The

Public Health Engineer is a specialist. He sees these faults very much more quickly and surely; if they are obscure he has the skill and knowledge to disentangle them; and when he finds them, he knows how to correct them.

The Public Health Engineer is, or should be, much more than this, however. He is the only public health worker whose initial professional training necessarily makes of him a business man, in the sense of an administrator of operations on schedule time, and with economy of labor and expense. Those physicians who make good administrators in this sense do so because they learn it in administration, not because of initial professional training. This training of the Public Health Engineer makes him also the best man to supervise maintenance of public utilities, as well as to construct and equip them. Further, the absence of training in mechanisms and machinery so prominent in the training of most health officials, makes of the Public Health Engineer the only public health man who can deal properly with the many mechanical devices for modern handling of the public routes of infection, on the perfection of which many lives often depend. The hypochlorite plant, the mechanical filter, the Pasteurizing device are machines. However well a physician may understand the underlying biological principles, he cannot figure the pitch of a cog-wheel or find the reason of the filter "loss of head" without infinite and wasteful effort, if at all.

The Public Health Engineer is in public health what the surgeon is in medicine, the "man of his hands,"—the actual operator. Whatever the physician may discover as surgically necessary to be done, it is the surgeon who must bring his skill and knowledge to bear upon the doing of it. So, although the epidemiologist, the vital statistician, the laboratory man must usually determine the sources and routes of disease, it is the Public Health Engineer to whom we must all turn wherever and whenever those sources or routes can be put out of action by physical construction or mechanical device, or when economic maladministration of public utilities is the real basis of the trouble rather than a physical condition.

The Public Health Engineer is not, however, as a rule, a man of a biological turn of mind. He generally takes vital statistics too seriously and, lacking medical knowledge, interprets vital statistics too mechanically. His own units of weight, volume, and measurement are fixed and definite. He has not learned to scan the unfamiliar units of disease, each by itself; nor is it likely that as a class he ever will. The spectacle of an engineer advising on a strictly medical problem is only less sad, if less sad at all, than that of a medical man advising on a strictly engineering problem. It is in co-operation, each perfect in his own field, but aiding the other with real understanding of the other's problem, that well-balanced, sane advance is made.

So far as the five great routes are concerned,—water, food, milk, flies, and contact,—the engineer has so far found his chief field in dealing with water supplies. Even sewage disposal, so far as it is a sanitary problem, has as yet been chiefly considered in so far as it might affect the purity of water. But in the future the engineer must also deal with milk supplies, their production, transportation, pasteurization, disinfection; with the great fly problem and its chief corollary, the safe disposal of human excreta, as well as its minor corollaries, garbage and manure removal. Finally, perhaps chiefly, he must deal with the great sociological factors on which rest contact infection in public meeting-places,—the factory, the shop, the church, the theater, the school, even the tenement and the private home. Above all, the great engineer of the future is he who will see with trained analytical mind and act with trained administrative ability in organizing or re-organizing not one but a dozen of the many factors in the modern complex of society along lines which shall in themselves redistribute concentrated forces now too closely interwoven for mutual good.

But there must be more public health in engineering rather than more engineering in public health. This series of papers will have failed wholly of pointing out the real essential inside truth of public health progress if it leaves belief that infectious diseases can be abolished through any physical or mechanical means. The great engineering operations of the day have an importance to mankind much greater in sociological and economic lines than in public health. But the public health end must not be neglected, even though we recognize that it can never be the great end of engineering, because no mere guarding of such *routes* of infection can abolish disease, and, if it could, there are far more direct, drastic, and simple measures to be enforced in other directions than in the protection of public utilities. Great engineering works are not essential to the abolition of infectious diseases, but great engineering work should be conducted so as to secure what reduction in such diseases it may. The ultimate abolition of infectious diseases rests with the supervision of the infectious individual, and no mere adjustment of surroundings can so affect his conduct as to compel that conduct along proper lines. But the public health engineer through housing, organization, and the proper construction and supervision of public utilities can so design the lines of least resistance that the public, who generally follow these lines, will find them plain and smooth, but hedged about with iron walls of safety.

SUMMARY

It is a complete misnomer to designate as a sanitary engineer him who merely narrows his attention from the principles and practice of engineering in general to the application of these principles for the purpose of constructing water supplies, sewage-disposal systems, rendering of garbage, etc.

A man is not a sanitary engineer because he can lay down sewer pipe any more than a man is an artist because he can lay on paint. The Public Health Engineer in the true sense is he who has acquired so wide a view of modern life, of its mechanisms, and of the physical side of man's environments, that he can see and act through them for man's physical protection not merely from accident but also from disease. He does not just build sewers. When he builds them, he builds them as part of the great fabric of modern life. His plans are not merely so many feet of pipe, at such a price per foot: they are adaptations and applications of great fundamental laws to the physical advancement of mankind.

PROGRESS IN MEDICINE

Abstracts of medical reprints and articles on file in the library of the Department of Medicine, College of Medicine and Surgery, University of Minnesota.

UNDER THE CHARGE OF

DR. CHAS. LYMAN GREENE

Professor of Medicine and Chief of the Medical Clinic

These abstracts are read and discussed at the departmental meetings held monthly at the University Hospital.

UEBER DIE VORLAGERUNG INTRA-ABDOMINELLER ORGANS ZUR ROENTGEN-BESTRAHLUNG

Drs. R. Werner and A. Caan, Privatdozenten in the Samaritan House in Heidelberg, in a recent article under the above title, point out the desirability of bringing the intra-abdominal organs under conditions for Roentgen therapy similar to those existing in the treatment of superficial lesions where radiotherapy has won so many triumphs.

The temporary eventration of abdominal organs to render them available for Roentgen treatment was undertaken by Carl Beck in 1907, with some rather encouraging results in inoperable cases. Dr. Czerny, in his Heidelberg clinic, has used the method in 13 cases, 9 of which were inoperable gastric carcinoma, 2 were advanced cancers of the rectum, and 1 each gall-bladder and ovarian tumors. In the gastric cases, the method consisted in liberating the tumor-mass from its adhesions and drawing it as far as possible into the wound, the closure of the latter being prevented by stitching the peritoneum to the skin margin. Silkwormgut strands fasten the normal tissue surrounding the tumor to the skin-peritoneal union. Where the carcinoma involved the posterior stomach wall, and was so fixed that it could not be drawn forward, the wound margins were widely separated so that only the anterior wall of the stomach remained interposed between the tumor-mass and the x-ray tube. On the other hand, if a tumor were partly covered by liver, the liver border was united by means of a mattress suture to the skin border. The ends of the sutures were left long so that traction could be applied during the exposure to the ray.

These procedures were not followed by a single untoward result. Usually the patients were able to leave their beds after two or three weeks, the open wound being supported by a tight bandage. The exposed tumor and stomach-wall became covered with granulations. One patient who was operated upon seven months ago, upon whom no subsequent operation had been performed to close the wound, has been at work for six weeks without discomfort from the opening in his belly-wall.

In the other cases there were even greater operative difficulties, which were overcome in a somewhat similar manner.

F. S. BISSELL.

MISINTERPRETATION OF CARDIAC PAIN

By ALEXANDER LAMBERT

New York State Journal of Medicine, September, 1911

The importance of a proper recognition and valuation of cardiac pain is emphasized, and the writer points out that it means a struggling heart.

The pathological processes responsible for it, are those resulting from the action of poisons which injure the muscles or valves, or affect the coronary circulation.

Cardiac pain may accompany the acute infections and is extremely important in the convalescence from pneumonia, influenza, diphtheria, or typhoid, both as affecting treatment and the necessity for cardiac stimulation and enforced rest.

Frequently present in valvular lesions, it is least common in simple mitral regurgitation, but is frequently observed in mitral stenosis; in which lesions there is a more or less continuous and progressive, subacute, inflammatory process affecting the base of the valve and its surrounding myocardium.

Dr. Lambert lays unusual stress upon the effect of tobacco as a producer of cardiac disturbances and refers frequently to alcoholism as a neurological factor in the production of cardiac pain. He combats the widely accepted belief that the only cardiac pain of serious significances is that radiating down the left arm and insists that cardiac pain is expressed, not only by the heart, but by the region of the body-wall surrounding and adjacent to it whenever these areas are supplied by nerves from the same segment of the spinal cord.

He would have palpitation clearly distinguished from actual cardiac pain, and he states that this latter is not of an intermittent character, does not throb, and does not vary with the heart-beat.

His description of referred and reflexed pains is extremely interesting, but space does not permit of a proper abstract.

A most interesting discussion of areas of tenderness and hyperesthesia, usually interpreted as intercostal neuralgia, and pseudorheumatic pains is contained in this most interesting and readable article.

Lambert says that each generation of the medical profession requires an asylum or some restful mental concept into which troublesome aches and pains may be put to rest, and states that more cases of angina pectoris have been misunderstood as rheumatism than in any other single misinterpretation.

He seems to think that to a certain extent the severity of cardiac pain and the degree and persistence of tenderness succeeding it, or accompanying it, constitute a measure of the severity of the lesion. The area of the pain he believes to be of less importance, and he says, further, that pain which comes on after slight exercise in the absence of hypertension and dilatation, when in fact there seems to be but little wrong with the heart, offers the worst prognosis of all.

Attacks of pain in the aortic region mean interference with the coronary circulation and starvation of the heart-muscles.

The paper, which is based upon the work of Henry, Head, Sherrington, and Makenzie, is a valuable one, especially in its tendency to correct the all too prevalent tendency to disregard the lesser cardiac pain and to attribute referred pain to non-existent lesions.

C. L. Greene.

GASTROGENOUS DIARRHEAS

By Prof. D. A. Albu, Berlin

The author summarizes the progress made in the study of intestinal diseases, emphasizing the possibility of making a local diagnosis in many cases.

Intestinal catarrh is not necessarily manifested by diarrhea. Nervous diarrheas are not uncommon. When the stools show all the constituents of the food are equally poorly utilized, the condition is due to increased peristalsis. Chronic intestinal catarrh is often associated with neurosis, and either may be primary.

By gastrogenous diarrheas we understand those due to disturbance of the secretory function of the stomach, especially deficient HCl. Meat and connective tissues reach the intestine undigested and in consequence of decomposition give rise to catarrh. The passage of contents through the small intestine is so rapid that this is unaffected, the large intestine alone developing the catarrh.

In gastrogenous diarrhea there is no loss of weight. The condition lasts many years with intermissions of months or years during which the stools show no indications of gastric or intestinal disease. The new attack is usually caused by a gross error in diet, and may last days, weeks, or months. He has not observed incurable cases.

Not even diarrhea with anacidity is gastrogenous. The connection must be demonstrated in each case. The demonstration of undigested connective tissue in the stools with a diet containing from 100 to 150 grms. of finely divided meat, slightly cooked, shows the gastric digestion is at fault. The carbohydrates and fats are normally utilized.

Usually gastritis is the primary condition, but, no doubt, nervous achylia may produce the same effects. Hyperacidity does not produce gastrogenous diarrhea.

The treatment consists in a diet from which meat is excluded for some weeks, or given well cooked and finely divided. Kefir, yoghurt, and tablets of lactic acid bacilli often act well. Dilute hydrochloric acid is given, 30 drops in a glass of water, t. i. d., half taken just before and half immediately after meals containing meat.

J. S. Gilfillan.

A CASE OF MALARIAL FEVER SHOWING A TRUE PARASITIC RELAPSE DURING VIGOROUS AND CONTINUOUS QUININE TREATMENT

By Sir Ronald Ross, K. C. B., F. R. S.,
and
David Thomson, M. B., Ch. B., D. P. H.

Annals of Tropical Medicine and Parasitology, February, 1912, p. 539, Vol. V, No. 4

As contrasted with certain cases of pseudorelapse during active quinine treatment, as previously reported by the authors, they here describe a true parasitic relapse in a case of malarial fever acquired on the river Amazon.

The patient's blood showed the picture of combined benign and malignant tertian infection, about 16 crescents per c. m. m. being present. Marked auto-agglutination of the red cells was observed, and nucleated and stippled erythrocytes were numerous.

Ten grains of hydrobromide of quinine, three times daily, reduced the asexual parasites below the detectable limit in five days, two days longer than the usual period.

After a short period of apparent relief and normal temperature, the febrile periods recurred, and four days later asexual parasites and crescents appeared and persisted until the dose of quinine was reinforced by 30 grains of the bihydrochloride given intramuscularly and 12 grains of methylene-blue daily in pill.

Urinary examinations showed free absorption of the quinine, and the author's direct attention to the extraordinary tolerance of the patient who suffered no discomfort whatsoever from a practically continuous course of heavy doses of quinine covering a period of fifty days. They also state that symptoms of cinchonism seldom occur if the patient is unaware that large doses are being employed.

C. L. Greene.

UEBER SYPHILIS ALS URSACHE VON HERZ UND GEFASSERKRANKUNGEN

By Dr. Reinhold Ledermann, Berlin

Deutsche Medizinische Wochenschrift, p. 1038, No. 22, May, 1912.

Ledermann reports on the results of 6,000 seriologic investigations relating to syphilis, 103 of which were undertaken in patients suffering from clinically recognizable heart disease.

Inasmuch as the work in his laboratory involved the handling of thoroughly investigated cases from the clinics of Goldscheider and Senator, as well as those of other well-known clinicians and internists, his records are unusually exact and ample, and his conclusions peculiarly valuable.

His conclusions are as follows:

1. Syphilis is a frequent cause of cardiovascular disease.
2. The three lesions most prominent are aortic aneurism, aortic insufficiency, and arteriosclerosis.
3. In all mediastinal tumor suspects a Wassermann test is indicated.
4. Even in the absence of a positive test if the case-history reveals a history of luetic infection, anti-syphilitic treatment is indicated.

The results of Ledermann's work are quite in accord with other recent reports based upon the modern interpretation of autopsy findings, the recovery of the specific organism, and the use of the Wassermann test. His paper is worthy of a careful reading and cannot be done justice in any brief abstract. C. L. Greene.

CARDIAC MURMURS DURING ATTACKS OF BILIARY COLIC

By David Riesman, M. D.

American Journal of Medical Sciences, November, 1911

Riesman states that among 56 cases of gall-stone disease from private and consulting practice 6, or 10.7 per cent, showed cardiac murmurs. He believes that if the heart is carefully examined during or immediately following an attack, a murmur will usually be found which did not exist before the attack. The murmur described is usually quite loud and blowing, systolic in time, and heard best at the apex, not transmitted far, but at times heard near the anterior border of the axilla. The heart is nearly always somewhat enlarged, but the dilatation is not extreme. Soon after an attack, or an operation if one is undertaken, the murmur disappears.

Regarding the significance of the murmur, the point of chief importance is the bearing the discovery of the murmur may have on the attitude of the physician or surgeon toward a contemplated operation, and this attitude will depend upon the cause given for the murmur. The author states that he has never seen a case of endocarditis antedating the formation of gall-stones. This statement appears a trifle pedantic, but Riesman does not state that such a thing is impossible.

The explanation given for the presence of the murmur is temporary myocardial weakness with relative insufficiency of the mitral valve. At first he says he was inclined to attribute the murmur found to pain, but he has later concluded that the chronic infection of the biliary passages leads to degeneration of the myocardium, and during the attack of pain there is a sudden rise in blood-pressure, and this is the exciting cause of dilatation and mitral murmur.

The author cites one very interesting case as proof of his conclusion. The case was of a woman 61 years of age who had two attacks of gall-stone colic. A mitral murmur was found present during and immediately following each attack. After operation, and despite an ether pneumonia, the murmur disappeared. Riesman contends that such a murmur should not be looked upon as a contra-indication for operation, but, rather, an indication for surgical intervention, and that it has some diagnostic value. In conclusion, he adds that he has examined many cases of renal colic and never found such a murmur.

The paper is an admirable one and opens up rather a new field for study in the lines both of medicine and surgery, but it will take a vast amount of observation and a large series of cases before conclusions can be arrived at which are not subject to error.

J. E. Hynes.

REMARKS ON THE CLASSIFICATION OF DIABETES

By Franklin W. White, M. D.

Boston Medical and Surgical Journal, Vol. CLXV, No. 5, August 3, 1911

White enters a plea for the classification of diabetes according to the time-honored carbohydrate balanc grams, rather than as a per-cent utilization factor. The carbohydrate balance is the difference between the amount of carbohydrate eaten and that lost in the urine, positive if more is eaten than lost and negative if more is lost than eaten; e. g., if a patient eats 60 gms. of carbohydrate and 30 grams are passed in the urine, he has a positive balance of 30 grammes; if he eats no carbohydrate and passes 30 grammes he has a negative balance of 30 grammes.

Von Noorden calls cases with a balance of 100 grammes very mild; with a balance of 50 to 100 grammes, mild; with less than 50 grammes, moderate, and with less than 0, severe.

The gradual reduction of carbohydrate in the food until the urine is sugar-free is an excellent way to begin treatment, according to White, and is also one of the best ways of measuring a patient's carbohydrate tolerance. Illustrative of his contention White cites examples as follows:

Starting patients with glycosuria on a carbohydrate-free diet, or nearly so, we have the urine free from sugar, say in a week's time.

Case A may be sugar-free with 5 grammes of carbohydrate eaten. His factor is 100 per cent. He burns all he takes.

Case B may be sugar-free with 50 grammes of carbohydrates eaten. His factor is 100 per cent.

Case C may be sugar-free with 200 grammes of carbohydrates eaten. His factor is 100 per cent.

Although the "per-cent utilization factor" is the same in all these cases, they differ greatly in tolerance, and White asks if it is not a great deal simpler and more direct to say that the patients have a tolerance of 5, 50, and 200 grammes of carbohydrates, respectively.

Another point: 100 per cent in these cases does not mean normal efficiency—far from it; it simply means the patients were able to use completely the small amount of carbohydrates given them. Different stages of the same cases can be compared in which their tolerance under careful supervision can be greatly raised. This classification, he argues, is much simpler than the method of computing a negative per-cent utilization factor by determining the nitrogen of the proteid food eaten, multiplying by 3.65, deducting from this the urinary glucose, and comparing the difference with the total possible glucose theoretically to be derived from the protein.

In conclusion, White remarks that the carbohydrate balance in grammes is one of the simplest and clearest guides in classifying diabetes, in comparing different cases, and in comparing stages in the progress of a single case. J. E. Hynes.

THE CLINICAL IMPORTANCE OF DIFFERENCES IN ARTERIAL PRESSURE BETWEEN THE TWO ARMS, ESPECIALLY IN RELATION TO CHEST-LESIONS

By Dr. J. L. Pomeroy, A. B., M. D.

Southern California Practitioner, November, 1911

Pomeroy, in an analysis of 102 cases in which were included four cases of pneumothorax, five cases of obscure suspected growths in the mediastinum, and 93 cases of pneumonary tuberculosis, found the following:

Blood-pressure and the lesion were greater on the right side 19 times.

Blood-pressure and the lesion were greater on the left side 11 times.

Blood-pressure was greater on the side opposite the lesion 50 times.

It was equal 13 times.

When the lesion was on the right side the pressure was equal 5 times.

When the lesion was on the left side the pressure was equal 8 times.

When the lesion was on the right side the blood-pressure was greatest on the left side 16 times.

When the lesion was on the left side the blood-pressure was greater on the right side 34 times.

In a group of 4 pneumothorax cases the blood-pressure was greater on the side of the pneumothorax each time.

In the 5 cases of suspected mediastinal tumors the blood-pressure was consistent with the clinical findings 4 times and could not be properly interpreted once.

Pomeroy wishes it understood that the findings in these cases are in the nature of a preliminary report, and that further observation will be necessary before any definite conclusion can be reached.

The greatest difference in pressure that he observed was 34 m. m., this was in a case with a large cavity existing at the left apex, and the blood-pressure in the left arm was 34 m. m. higher than in the right. He observed a difference of over 10 m. m. 52 times.

There is some evidence to show that the pressure is normally higher in the right arm if the patient is right-handed and vice versa. It must be observed here, considering the frequency of right-handedness, that the difference in favor of the left side is of far greater importance than differences in favor of the right.

Pomeroy further points out that the variations in blood-pressure may be due to hitherto little-noticed factors: contractions about the apex of the lung changing the anatomical relations of the subclavian artery, changes in the mediastinal tissues secondary to tuberculosis (enlarged bronchial glands, etc.), other new growths in the mediastinum, changes in the position of the heart and great vessels due to extensive destruction of lung tissue, and to changes in the height of the diaphragm following pneumothorax or certain intra-abdominal conditions (as enteroptosis, dilated stomach, etc.), and lastly, the presence of a cervical rib may also be a disturbing factor.

The most important fact from a diagnostic point of view is that a difference in blood-pressure between the two sides cannot be of any help in differentiating aortic aneurism from other intrathoracic conditions, especially in the case of pneumonary tuberculosis or enlarged bronchial glands.

Pomeroy promises further reports upon this very interesting subject and desires it understood that this is merely a preliminary report. J. E. Hynes.

CHRONIC PANCREATITIS

By Joseph Sailer, M. D.

American Journal of the Medical Sciences, September, 1910

Sailer takes up the morbid anatomy of this condition first, i. e., degenerative changes in the cells and proliferation of the connective tissue associated with round-cell infiltration. The etiology of this condition may vary. Among the known causes are obstruction of the pancreatic duct or ducts which may be produced by lodgment of a gall-stone in the ampulla, first described by Opie; or the presence of calculi in the ducts, commonly composed of calcium carbonate, which are in all cases associated with more or less focal, and sometimes with general, sclerosis of the pancreas: or the infection of the pancreatic tissue by the route of adhesions in its immediate neighborhood or, possibly, by the existence of pancreatitis in new-born children suffering from hereditary syphilis. Cysts of the pancreas and, probably, chronic pancreatitis are very apt to develope after at- certain general infectious diseases, as the type of chronic tacks of acute pancreatitis.

The symptomatology is usually as follows:

a. Some discomfort, apparently associated with the stomach.

b. Evidence of indigestion.

c. Pain of any degree or variety, sometimes in the neighborhood of the umbilicus, and sometimes elsewhere in the abdomen.

4. Jaundice, as a more definite sign, but only occasionally.

e. A distended gall-bladder.

f. A mass in the region of the umbilicus that can be differentiated occasionally from the stomach.

Sailer classifies the cases of chronic pancreatitis into three clinical types.

The first is represented by cases where, either as a cause or a complication of the sclerosis, there is obstruction of the duct of Wirsung and the common bile-duct.

The second type includes cases in which the swelling of the head of the pancreas is so great that a palpable tumor is present. There are also jaundice of the most intense character and great digestive disturbances.

The third and larger class includes cases in which there is neither jaundice nor a palpable mass, and the diagnosis is usually made by the surgeon, or only after long observation and careful correlation of the symptoms, signs, and laboratory tests that may suggest or indicate impaired functional activity of the gland.

The symptomatology of these forms may be given as follows: Nutrition is impaired; patients are emaciated, sometimes to an extreme degree; discomfort is felt after eating, and this can usually be traced to eating carbohydrates; vomiting occurs quite constantly, but only at long intervals; usually constipation is the rule and sometimes occasional attacks of diarrhea.

The main factor in the diagnosis is the recognition by chemical or other tests of the insufficiency of the pancreatic secretion. These tests he divides into the following groups:

1. Those showing disturbances of the internal secretion of the gland, if such exists.
2. Those which have to do with the recognition of some of the pancreatic ferments in the stomach or intestinal contents.
3. Those which indicate whether the pancreatic ferments have been discharged into the intestines and have properly functionated there.
4. Those which show a disturbance of the carbohydrate metabolism.

Under the first group belongs the dilatation of the pupil after the instillation of adrenalin. This, Sailer concludes, is of doubtful value.

Under the second group are included the attempts to obtain regurgitation of the duodenal contents into the stomach by the administration of large quantities of oil. The contents are then examined for trypsin. The results of this test are not conclusive or constant.

Laquer's method depends upon the recognition of trypsin in the feces, the process which Sailer describes.

The third group is represented by the passage of some substance through the stomach and its solution in the intestine if the pancreatic secretion is active; such as the administration of methylene-blue in a glutoid capsule or salol-coated pill. Sailer states that no conclusion can be arrived at by this method.

The fourth group of tests depend upon the disturbance of the carbohydrate metabolism. The presence of sugar in the urine is very common in pancreatitis, and he advises testing a patient's sugar-tolerance by giving 100 grams of glucose and testing the urine.

As to the treatment of chronic pancreatitis: Sailer says there is much dispute.

The surgeons claim the only way to cure this is by draining the biliary passages, in order that, when the secretions do not reach the duodenum, their retention may not injure the pancreas. The conclusion arrived at is that in obstructive pancreatitis or adhesion, surgery may do good, but if the inflammation is due to advanced sclerosis it is useless.

The medical treatment is symptomatic and specific. Food should be easily digestible, and it may be necessary to give the regular diabetic diet. Constipation should be combated with laxatives and enemas.

The specific medication is the extract of pancreas. Most of the commercial products, however, are contaminated with colon bacilli. They must, of course, be administered either in salol-coated pills or glutoid capsules, as the stomach will destroy the extract of pancreas entirely. The glutoid capsules are greatly to be preferred according to the author.

In conclusion Sailer describes and gives the case-histories of two very interesting cases of chronic pancreatitis, both in women, one aged 54 and the other aged 35, both of whom were practically entirely cured by the administration of 5 grains of extract of pancreas in glutoid capsules after each meal, and each made a very satisfactory gain in weight. Sailer qualifies his results in these two cases by stating that when they omitted the capsules they both had discomfort, and he concludes that possibly there were other factors involved, possibly ferments or neutralizing bodies.

The article is admirable and opens up a much-neglected field to the internist.

J. E. Hynes.

EIN BEITRAG ZUR THERAPIE DER ACIDOSE

By Privatdocent Dr. L. Lichtwitz, Göttingen

Therapeutische Monatshefte, February, 1911

The author points out the occasional disadvantages of the valuable and widely employed sodium bicarbonate introduced into our therapy of acidosis by E. Stadelmann in 1883.

These are distention and discomfort from the liberation of CO_2 by the HCl of the stomach-contents, the disagreeable taste of the remedy as usually administered, the occasional occurrence of nausea, loss of appetite, and the occurrence of diarrhea in cases where unusually large doses of the drug are required to overcome hyperacidity.

He argues the impossibility of actually neutralizing blood and tissue-acidity by such means, emphasizes the deleterious action of acidosis upon the organs of secretion and excretion, and would substitute sodium citrate, stating that even when given in amounts of 50.0 per diem it produces no untoward symptoms.

C. L. Greene.

ZUR KENNTNIS DER LORDOTISCHEN ALBUMINURIE

By Privatdocent Frank Hamburger, Vienna

Wiener klinische Wochenschrift, Jahrgang XXV, No. 7, 1912

Hamburger warmly supports the theory of Jehles that lordosis produces an albuminurea in many children through renal stasis, and he would place most of the albuminureas of adolescence under this head. He lays much stress also upon an excitable and unstable vasomotor system.

Experiments undertaken by means of a special device for producing and maintaining definite grades of lordosis for fixed periods, showed that in the same individual and under like conditions albuminurea might or might not be present at different periods.

The experiment would not seem to offer much support to either limb of the theories set forth, and one finds a much more rational explanation in the varying toxemias of chronic tonsilitis, adenoids, and the like; and the structural and circulatory deficiencies of the chronic congenital asthenia present in most of such cases.

C. L. Greene.

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A CORRECTOIN OF A MISUNDERSTOOD EDITORIAL

In the last issue of the Journal-Lancet an editorial on Minnesota's Medical Defense Law, an ambiguous paragraph has caused not only a misunderstanding or a misinterpretation of what was a simple warning that might happen under some circumstances. Every physician who is in trouble or who is sued for alleged malpractice can rely upon his friends for assistance and it is a uniform custom for physicians to testify for a brother physician without compensation. This is a courtesy which we all extend from one to another when it is necessary. The case of Dr. Penhall was one of those unfortunate ones in which the doctor was unable to receive the benefit of the Physicians' Defense Association because it could not be made retroactive.

The editorial was not intended in any sense to reflect in any way upon the physicians engaged in this case and if the paragraph had not been ambiguous, no one would have given it a second thought. The editor desires to express his regret that anything objectional or reflective should have appeared during his absence and he takes this opportunity to assure his readers that nothing personal was intended. If all of the physicians who were interested in Dr. Penhall's case had been present in the house of delegates while it was under discussion they would have understood the situation at once.

OUR NEW PUBLIC HEALTH SERIES

When Dr. Hill was called to a larger field of work in Ontario, Canada, it became necessary to temporarily drop the series of papers he was writing for our columns. It is with pleasure that we announce the resumption of the series, and we expect to publish one a month until the subject has been covered as planned by Dr. Hill.

We think that it is safe to say that no more important papers on the subject of the public health have been published in many years, and it is gratifying to us to have very wide publicity given to these articles by the lay press, both by the daily newspapers of national circulation, and by the country papers, the latter of which have an unusual influence with their readers and are also quite sure to reach a class of people, many of whom are not readers of the other class of papers.

INFANT MORTALITY

The third annual meeting of the American Association for the Study and Prevention of Infant Mortality is to be held in Cleveland this week. This association was launched in 1909 by the American Academy of Medicine, which gave up its New Haven meeting to this subject. The Association for the Study and Prevention of Infant Mortality was formed upon a plan similar to that of the American Association for the Study and Prevention of Tuberculosis. The first meeting of the organization proper was held in Baltimore in 1910, and the second was held last year in Chicago.

The subject of infant mortality has been rightfully receiving more attention lately. The public generally, as well, unfortunately, as some of our own profession, are not aware of the high infant mortality. In Minneapolis in 1910, 623 children under one year of age died, which is almost twice as many as the total number who died of pulmonary tuberculosis during that same year, that is, 354. It has been said that an octogenarian stands the same chance of living through the year as the infant. The study and prevention of infant mortality includes, of course, in the first place, the obtaining of proper statistics and then the careful study of the causes of these deaths and the means of prevention.

What has been done in the Northwest? The state boards of health, as well as the city officials, have been interested in this propaganda and have given aid at all times. Their work has been of especial value in regard to the improvement of the milk supply. It has, however, been found that the improvement of the milk supply is but one of the phases of the work. There is too great a danger that when we lay stress upon the methods of artificial feeding we shall forget the real keystone to the situation, which is the increasing of the amount of maternal feeding. In fact, the campaign is largely one of education. In some of the cities, organizations have been formed, allied with the national organization which have for their purpose, mainly, the education of officials, laymen, nurses, midwives, and our own profession in these matters. Under the direction of Dr. Rowe, classes for mothers for home instruction have been carried on in Duluth. In St. Paul, with the aid of the Wilder Charity, Dr. Ramsey has carried on this work. In Minneapolis Drs. Sedgwick and Schlutz have been interested in this campaign.

The measures that experience has shown to be effective in reducing infant mortality are the following:

I. The prompt registration of births, to secure:

a. Reliable statements of infantile mortality in relation to the number of births; the mode of statement employed in other countries.

b. The earliest possible chance to prevent certain infantile diseases and blindness.

II. The improvement of social conditions.

III. The public control of sources of infection.

IV. Education for parenthood.

V. The education of mothers in the essentials of personal hygiene, of infant hygiene, and of infant feeding.

VI. The encouragement of maternal nursing.

VII. The establishment of milk-stations for the sale or the distribution of clean milk.

Although the work is most pressingly needed in the larger cities, it is hoped that the subject will be taken up throughout the Northwest so that this unnecessary loss of children's lives may be prevented.

A REMOTE DANGER FROM A GENERAL ANESTHETIC

The paper by Dr. Hart, published in this issue, points out a remote danger from the administration of a general anesthetic which has not been as generally recognized as it should, but anyone of experience who will think back will call to mind cases in his experience which illustrate the point so well made by Dr. Hart.

The selection of the proper anesthetic for a given patient does not receive the attention it should. No anesthetic is free from danger, and it is our duty to select the anesthetic for a patient that is accompanied by the least danger to him, not only at the time of the operation, but subsequently. We have ample statistics bearing upon the *immediate* dangers of the various anesthetics at our command, but, unfortunately, we have no statistics bearing upon the *remote* dangers, which are greater than we realize. The tendency of the profession, the world over, is to be governed by prejudice in the selection of an anesthetic. It is unsafe and unscientific for anyone to say that a given anesthetic should always be used because it is safer than the other, for the term "safer" is a relative one and depends upon the condition of the patient.

In this country ether is the choice anesthetic in hospital centers because statistics have demonstrated that fewer deaths occur on the table from the use of ether than from chloroform. In the country districts, however, chloroform is the choice anesthetic because it is the more powerful drug and puts the patient asleep more promptly. In this Western country where many non-medical persons,—nurses and others,—are employed as anesthetists, the responsibility of choosing the anesthetic rests with the surgeon. Of the three agents used for general anesthesia, nitrous oxide is doubtless the safest, but, owing to the fact that it requires elaborate and complicated apparatus and special skill for its administration, it is not likely to be used as much as either ether or chloroform. But, safe as it is, it should not be used indiscriminately.. Where the facilities are at hand for its proper administration, nitrous oxide should be the anesthetic of choice for short operations, and where for any reason ether and chloroform are contra-indicated. It should not be used, however, in operations on the larynx, where there is extensive syphilitic degeneration, high arterial tension, heart-lesions, advanced pulmonary tuberculosis, and exophthalmic goiter, because in these conditions it is more dangerous than the other anesthetics. After the administration of nitrous oxide it quickly disappears from the system, and, so far as is known, there are no late complications.

Our greatest difficulty is in choosing between ether and chloroform. In doing this, every surgeon should try to overcome his natural prejudice in favor of either one or the other, and think only of the interests of the patient under consideration. When there are no contra-indications the concensus of opinion is that ether is at least four times as safe as chloroform, and should therefore be the routine anesthetic. The greatest objections to ether in the past have been that the drug has been unskillfully given and too much of it used, but now that it is administered by the drop-method, as chloroform has always been, those objections have been overcome. It should be borne in mind in the selection that ether is a stimulant and is the safer drug in the presence of heart-lesions and fatty heart. In chronic inflammations such as tuberculosis, chronic bronchitis, chronic nephritis, ether is admissible, but in the more acute inflammatory conditions of these organs chloroform is the safer of these two drugs. In the presence of aneurism or general arteriosclerosis all anesthetics are dangerous, but chloroform is the safer.

It would seem at the present time that spinal anesthesia is not to take the prominent place that enthusiastic advocates of its use taught us to believe, because it is more difficult to administer and is fully as dangerous as general anesthesia, and the surgeon can certainly do his work more comfortably with the patient unconscious.

Papers like Dr. Hart's, with such full discussion as followed his, are very valuable, and tend to fix in the minds of the men who attend association meetings the established facts concerning points vital to both physician and patient. We commend the paper and its discussion to our readers.

NEWS ITEMS

Dr. H. V. King, of Marshall county, is to locate in Millville.

Dr. J. M. McMasters, of Sauk Center, has moved to Minneapolis.

Dr. Hans Grivelli has moved from New Germany, Minn., to Waynesburg, Pa.

Dr. Wm. Davis, of St. Paul, has returned from his summer home at South Orleans, Mass.

St. Mary's hospital at Madison, Wis., has been formally opened, and already has many patients.

Dr. J. M. McMasters, formerly located at Sauk Center, Minn., has moved to Minneapolis.

Dr. J. F. Norman, of Crookston, was married on September 17th, to Miss Loretta Malone, of Bemidji.

Dr. Frank Sturgeon, of Gackle, N. D., has sold his practice at that place and will locate at Chaffee, N. D.

Dr. John Lajoie, of Minneapolis, was married on September 4th, to Miss Julia Ann Womack, of St. Paul.

Dr. G. E. Sweitzer, of Minneapolis, has returned from Europe where he has been visiting the hospitals.

Four eminent surgeons of Germany, representing the government, are in Rochester attending the Mayo Clinic.

Dr. R. A. Schnacke has been appointed surgeon for the St. Paul police department, to succeed Dr. A. J. Dohm.

The eighty-fifth meeting of the Crow River Valley Medical Society was held at Howard Lake, September 25th.

Dr. J. G. Saam, assistant physician to the Fabiola Hospital of Eveleth, has resigned and gone to Lansing, Iowa.

Dr. T. W. Weum, who has been practicing in Duluth, has gone to South Haven, where he will open a surgical hospital.

Dr. A. M. Wooster, who has had charge of Dr. T. S. Paulson's practice, at Hills, Minn., for two months, has gone to Annandale.

Dr. C. O. Barney, who has been associated with Dr. C. T. Granger, of Rochester, has gone to Syracuse, N. Y., where he will do hospital work.

The Women's Auxiliary of the Hennepin County Medical Society recently held their opening meeting, at which they discussed plans for the year.

Dr. H. P. Ritchie, of St. Paul, who has been making an extended trip through France, Germany, Austria, and Switzerland, returned home this week.

Dr. V. T. McGillicuddy, of Rapid City, S. D., for many years a practicing physician in that state, was fatally hurt in an accident at Vancouver, S. D.

Dr. H. T. Allison, a 1911 graduate of the Northwestern University Medical School, and until recently connected with hospitals in Chicago, will locate in Brookings, S. D.

With the completion of two new medical buildings, the University of Minnesota has one of the most complete and up-to-date equipments for medical research in the United States.

The Battle Creek institution at St. Peter has passed into the hands of Mrs. Edward McGrath, who will conduct it as a regular hospital, which is gratifying to the physicians of that city.

Dr. E. A. Eberlin and Dr. J. R. Elsey have leased the Furtney house in Glenwood, Minn., and are converting it into a hospital. The building is modern and ideally located for the purpose.

Dr. C. C. Pratt, state bacteriologist in charge of the Mankato laboratory, was recently elected by the city council to the position of city health commissioner. He succeeds Dr. A. E. Sohmer, who resigned.

Dr. Gustave F. Ruediger, Grand Forks, N. D., of the state public health laboratory, has been very active the past summer in assisting communities in different parts of the state to work out the problem of better water supply.

Watertown, S. D., has instituted a system for detecting and remedying all physical defects of its school children. Recently, school work was suspended while each child was thoroughly examined, and records made by means of which parents will be kept informed of results. A trained nurse has been employed and will continue the work.

Dr. Boyd Williams, of Minneapolis, has appealed to the Supreme Court in his suit against the State Board of Medical Examiners, who refused to grant him a license to practice in this state because he advertised to cure cancer, held to be incurable. Judge Lewis, of St. Paul, declined to hear the case further, on the grounds that the State Board had exclusive jurisdiction.

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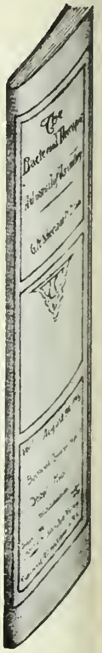

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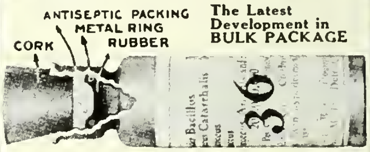

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THE
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SURGICAL NOTES ON GOITER*

By Arnold Schwyzer, M. D.
ST. PAUL

The main dangers in goiter operations, generally speaking, are hemorrhage, compression of the trachea, difficulties arising from the location of the goiter (retro-esophageal, intrathoracic, etc.), and injury to the recurrent laryngeal nerve. In exophthalmic goiters the increase of the toxic symptoms following the operation is by far the gravest danger.

In our own work, consisting of 92 operations, we managed to avoid the strictly technical dangers, while we had 3 deaths from hyperthyroidism in our 39 operations for exophthalmic goiter. In the 51 non-exophthalmic and the 2 malignant goiters we had 1 death, which was due to bronchoblennorrhea following intubation.

The time at my disposal is too short to go into details of technic, which has its first purpose to guard against hemorrhage. Of my own technic I only want to say that at least part of the posterior capsule is always left, except in malignant goiters, and that, after the upper horn is tied off, clamps are put all around the base of what is to be removed, preferably on the blood-vessels. The inferior thyroid is looked for only when greater difficulty is anticipated. Otherwise a running catgut suture catches the bleeding tissue while, step by step, the goiter is cut away. The suture has its best hemostatic effect if the edges of the remaining posterior capsule are approximated as firmly as possible. The edges need not, and should not, touch each other in the broader portions of the remaining goiter shell. We usually need only one catgut thread for one goiter lobe.

The interference with the respiration was mentioned in second place among the dangers in goiter surgery. During the course of the delivery of a goiter or already before the operation, respiration may be stridulous or even greatly dyspneic. The trachea, which is a merely membranous structure in its posterior quadrant, where it is in contact with the esophagus, thus lacks greater resistance against lateral pressure. (See Fig. 1.) A small hard lobe on one side, or even soft lobes, if they are bilateral, especially in the entrance to the thorax, may compress it. In the long run, the cartilage can become softened by myxomatous degeneration, and we then have its well-known sword-sheath form.

If dyspnea and excitement of the patient cause forced inspirating motion, the trachea may be completely closed by the addition of suction. That suction plays a considerable part in this difficulty explains the good results reported of late by the use of over-pressure. I saw this asphyxia occur in three cases. In one it happened before any operation; in one it came on during operation; and in another case it suddenly occurred half an hour after completion of the operation.

The first one of these cases was a carcinoma of the thyroid and was brought to the hospital moribund and in deep cyanosis. A large-sized silk urethral catheter was the first thing I could get hold of. I cut off its end obliquely and without resistance or delay inserted it through the larynx way down to the bifurcation of the trachea, after which the patient came to and time was thus gained.

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*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

The second case was the only one of the 53 operations for non-exophthalmic goiters that died. It was an enormous bilateral goiter with softening of the trachea. Half an hour after the completion of the operation the patient suddenly choked and I only saved her from sudden suffocation by hurriedly inserting down to the bifurcation of the trachea the one appliance within my reach, a stomach-tube which thus was used, you might say, as an internal splint for the trachea. The stomach-tube after being inserted, was cut off in front of the lips and was fastened to the ear by a loop of silk thread. A bronchoblenorrhea set in on the following days and became so profuse that the patient's strength was not equal to the expectoration needed.

The difficulty in these cases lies below the region an ordinary intubation-tube can reach. For the same reason we do not even get help from an ordinary tracheotomy canula (See Fig. 2), and I show you here the flexible long tracheotomy canula which Koenig constructed for such cases. The same principle you see here applied to an intubation-tube. (This tube was constructed and given me by Dr. Baer, of Zurich, who improved the O'Dwyer intubation-instruments to the form which you generally get nowadays.)

Our third case was one of intrathoracic goiter.

With this case we have thus reached the subject of intrathoracic goiters, which present special difficulties. There are three degrees: first, the mildest form, which the French call "goiter plongeant," and which, in deep inspiration, disappears or largely enters below the manubrium sterni; second, goiters where a part remains stationary inside of the cavity of the thorax; and, third, goiters where at least one lobe is entirely inside of the thorax with no palpable portion on the neck.

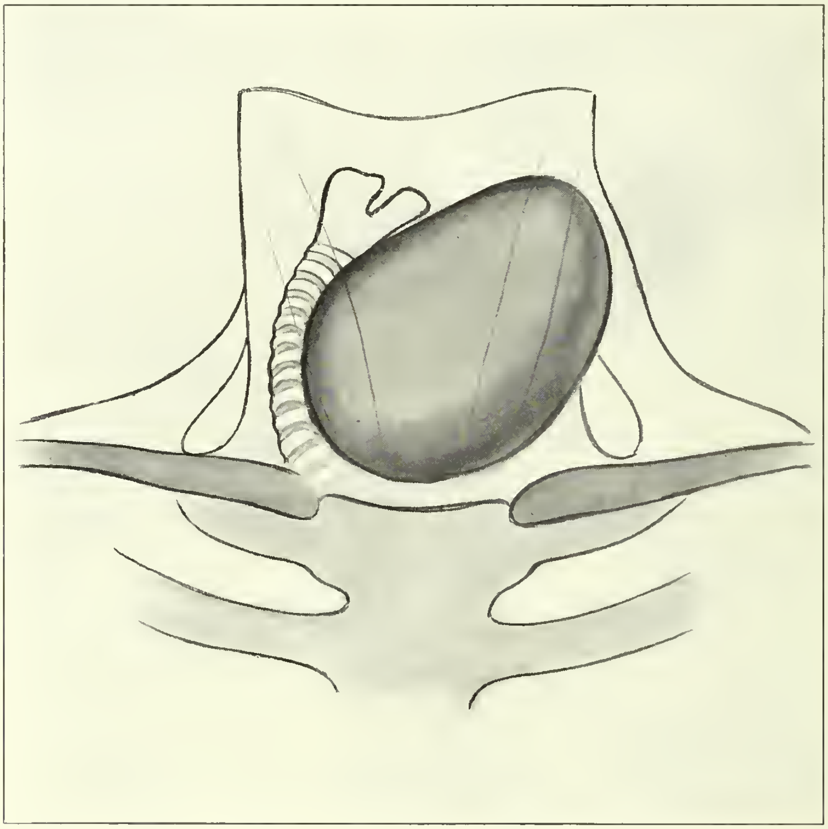

Fig. 1. Mr. P. Compression of trachea by one-sided colloid goiter.

In the two latter forms the larynx is usually fixed at deglutition and is low down in the jugulum. Enlarged veins on the upper front wall of the chest are frequently seen as communicating roads between the jugular, subclavian, and internal mammary veins.

As examples of the intrathoracic goiters I shall mention only two severe cases, mother and son of the same family. Both had severe interference with the respiration. It was in the son where we experienced the above-mentioned sudden and complete asphyxia during the operation. The young man of 18 years suffered from a bilateral moderate-sized goiter (See Fig. 3) and severe dyspnea. He could not lie horizontally. His respiration was like that of a child with diphtheritic dyspnea. The lower end of the sternum would be sucked inward at each inspiration, and all complementary respiratory muscles were kept in action. The goiter on the neck was absolutely fixed, even at deglutition, and especially on the right side could it be followed into the aperture of the thorax. An *x*-ray showed the goiter to reach to the lower border of the second rib at its sternal end. It proved to be the size of a man's fist.

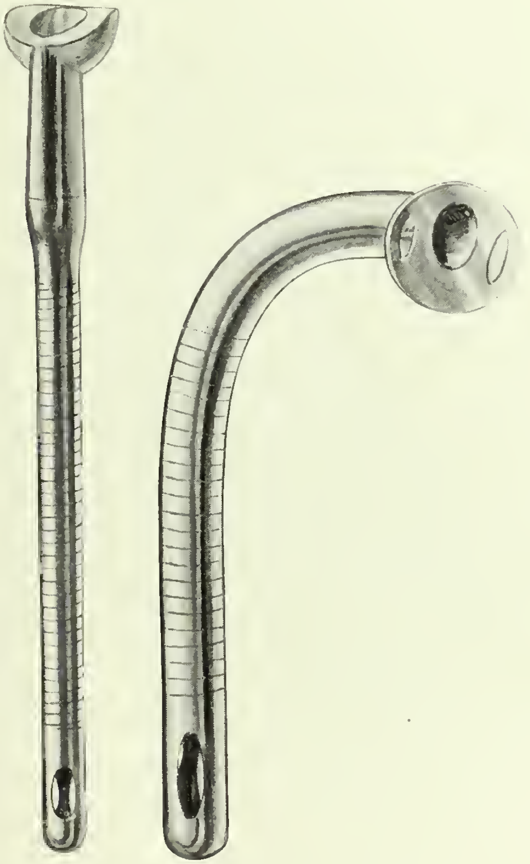
Fig. 2.

Operation on March 31, 1909. After the skin was incised the patient choked entirely. Intubation was tried, but the larynx could not be reached. It was drawn down too low by the intrathoracic lobe. During this manipulation the patient got no air. He stopped breathing entirely and seemed dying. Tracheotomy was then quickly done and a long flexible canula inserted down to the bifurcation. The patient was brought to life again, and with the canula in the trachea we could freely manipulate in the aperture of the thorax. The pulse, about 120 before the operation, went up afterwards to 176 on the following day, but came down at the end of a week. Six months later it was 90 and regular. Notwithstanding the complication of the tracheotomy the wound had healed promptly, and the canula was removed after forty-eight hours. The boy is now entirely well.

Two months after this patient had gone home his mother was operated upon. She had had a goiter since childhood, which had grown worse in the late years. Her pulse was 140. It was hard for her to go up stairs. The heart action was quite irregular. The sphygmographic curve shows marked irregularity in rate and volume. (See Figs. 4 and 5.)

We made an extensive resection of the goiter and removed two large lateral intrathoracic lobes. Each of these lobes was about the size of a woman's fist. They reached to the lower border of the second rib on each side. Though we expected to be confronted any moment with asphyxia, we managed to get both intrathoracic lobes out without splinting the trachea. This woman, though she had a wound healing free from inflammation, had for a long time after the operation a high and irregular pulse. Even three months after the operation I counted a 196 pulse in my office, and eight months after the operation she still had a pulse of 140 to 148, though she was quite satisfied with her condition. It is now three years since the operation. Her heart is still too fast and irregular, and she is unable to do much work.

Both these cases represent what Krause designated as *thyrotoxic hearts* in cases not due to Basedow. The microscopic pictures did not show Basedow changes. It is not to be wondered at, that the young man's heart recuperated much easier than his mother's, who had had her condition for so many years with undoubtedly myocarditic changes as a consequence. Digitalis given from time to time has a good effect on her.

As representative of another rarer form of goiter let me mention a retropharyngeal goiter where both very bulky lobes reached upward on the neck to a level with the hyoid bone.

To the sides and posteriorly the lobes reached behind the lower constrictor pharyngis muscle, where the two lateral lobes nearly touched each other in the middle line, thus producing a retropharyngeal goiter of the *circular type.* (See Figs. 6 and 7.) We removed the bulkier right side, resected the middle portion with a pyramidal lobe in front of the larynx, and also excised a good piece out of the left lobe. The patient was up in a chair the next day and left the hospital six days after the operation. After a few months the left side became apparently much smaller.

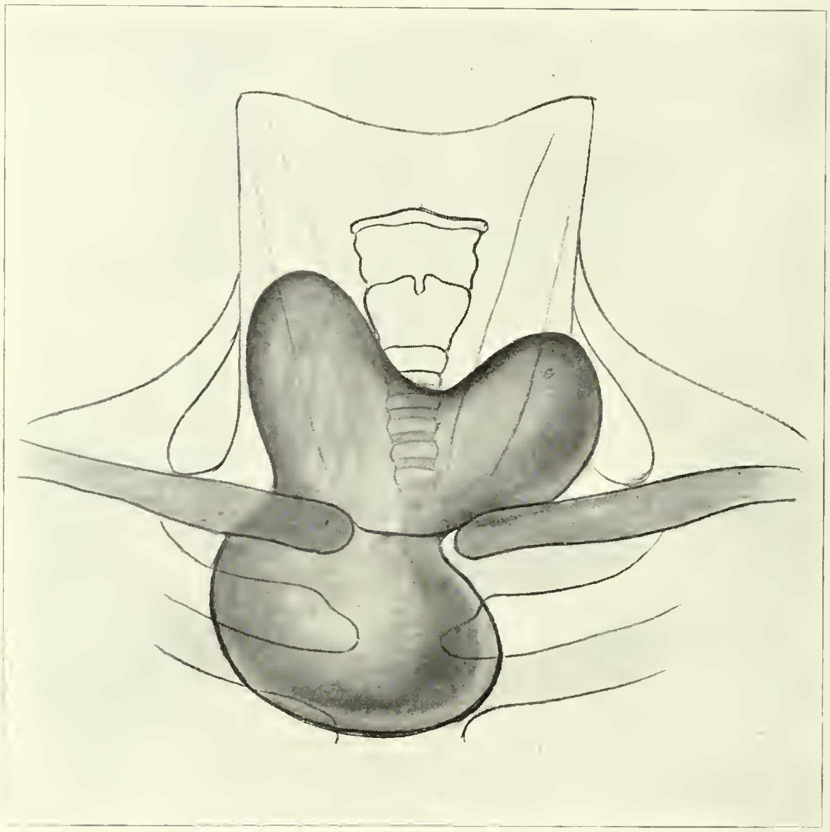

Fig. 3. Mr. M., 18 years old. Intrathoracic goiter. Thyrotoxic (non-Basedow) goiter heart, soon improved after operation.

Injury to the recurrent laryngeal nerve is a very unhappy accident. It may be due to overstretching of the nerve, or the nerve may be caught in a ligature or exposed to post-operative inflammatory infiltrations. It may be cut clean through, and a portion of it may have been resected with the goiter. Aphonia and later at least severe hoarseness are the result of it. Paralysis of a vocal chord may exist before operation from pressure of the goiter, and laryngoscopic examination ought therefore to be made in every case before operation.

Among my own cases I have not had a serious injury to the nerve. One case was, however, of peculiar interest. The patient had had as a child a severe form of diphtheria, and as long as she remembers she had a somewhat covered voice. The operation consisted of an extensive resection for exophthalmic goiter.

For two weeks after the operation her voice was not changed except perhaps weak. The patient then left the hospital in good condition. After another week or two, while the extensively drained wound was still secreting, the patient began to notice a hoarseness which bordered on aphonia. It took five months until the voice was fully as good as before the operation. After that time she could sing as well as before. Strange to say, the right vocal chord is not movable, though it appears under good tension. The arytenoids are symmetrical. Undoubtedly, this condition dates from her diphtheria in childhood. The laryngeal weakness has come on only secondarily, while the depth of the drained wound was in the healing and shrinking process. Injuries to the inferior laryngeal nerve, especially during ligation of the inferior thyroid artery, can easily occur. If the nerve is not cut but only overstretched, they usually clear up in a short while. If the hoarseness is, however, severe and the vocal chord does not come to after six to nine months, hope for recovery of the function is vain.

Last year there was reported in the *Annals of Surgery* a case in which an operation was performed for injury to the recurrent laryngeal nerve. The two severed ends of the nerve were found, and sutured with a good result. It was declared to be the first and only case of this kind on record. Last March I operated upon such a case in which, thirteen months previously, an able surgeon had performed a thyroidectomy for exophthalmic goiter. The result as to Basedow symptoms was perfect, and a beautiful transverse scar on the neck showed that the goiter had been low down near the jugulum. Immediately after awakening from the narcosis, the patient and her relatives declare, the voice was entirely gone. In the thirteen months the voice remained whispering, and at great effort it reached a little more than what we call accentuated whisper. The patient would use only the phase of inhalation for talking, probably because the inrushing current of air had the effect of approximating the vocal chords. As the young woman was a schoolteacher, she had lost her position, and was therefore happy and ready when I mentioned that an operative chance was left. The right vocal chord was paralytic, but not only was the chord paralytic, the right arytenoid prominence remained immovable at the attempt to phonate, while the left arytenoid placed itself toward the median line and in front of its paralytic partner.

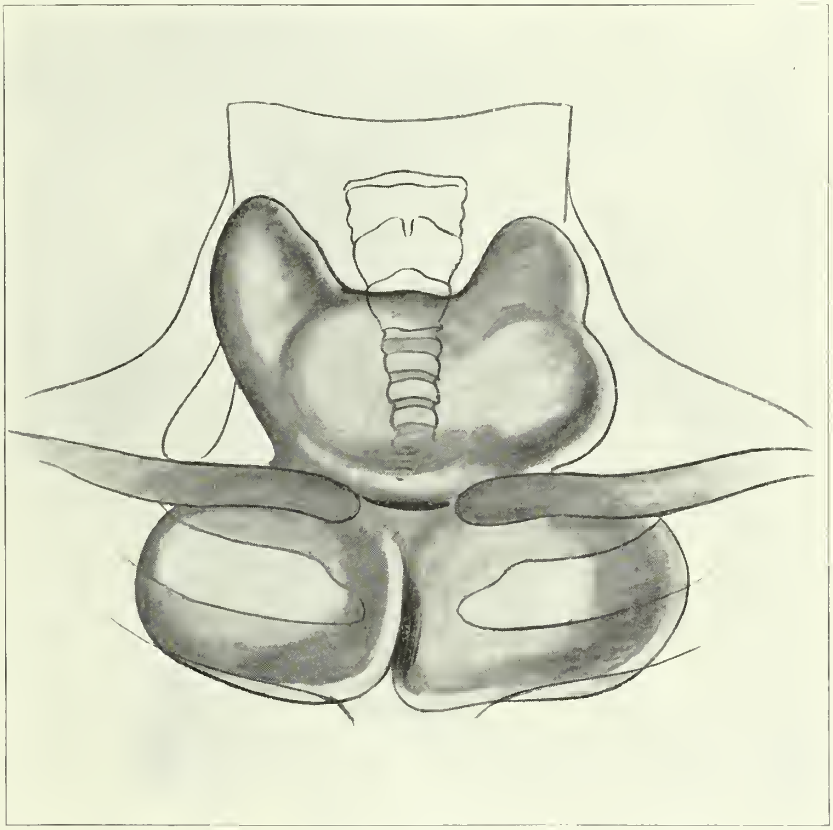

Fig. 4. Mrs. H., 50 years old; mother of Mr. H. Double intrathoracic goiter, with Krause's thyrotoxic (non-Basedow) goiter-heart. Slow improvement of heart, but only partial on account of long duration with myocarditic changes.

The operation took place on March 11th. After working very carefully through the scar tissue at the edge of the remainder of the thyroid we first looked for the lower portion of the nerve as low down in the groove between trachea and esophagus as was well feasible. (See Fig. 8.) A large lens with a handle as you find them in parlors for looking at pictures, was ready, and was sterilized and held by an assistant over the wound, so that we could do this minute dissecting work with accuracy.

The nerve was found, and it was seen that it ended abruptly about half an inch below its entrance underneath the lower constrictor pharyngis muscle. While the nerve up to its cut end was demonstrable with great neatness there was no vestige of it between this point and the edge of the constrictor pharyngis muscle. A half-inch piece had therefore been cut away with the goiter. The upper stump was not to be made out with the same definiteness as the lower because the nerve here dips underneath the lower constrictor pharyngis, in order to enter the larynx just behind the articulation of the cricoid with the lower horn of the thyroid cartilage. Constantly working under the lens, a cut end was traced, which seemed to go in the proper direction. To this we sutured the lower end. Another fiber lying near was put in contact also. It is now five months since the operation. The patient talks freely and without effort with a loud voice, which is, however, veiled. The arytenoid of the paralyzed side moves somewhat, which it did not do before the operation. The vocal chord itself does not show an active excursion at phonation, but the whole side of the larynx seems to move a little toward the median line, and the vocal chords meet fairly well, though this is due almost entirely to the activity of the left side. The patient is again accepted for teaching, to start in a month from now.

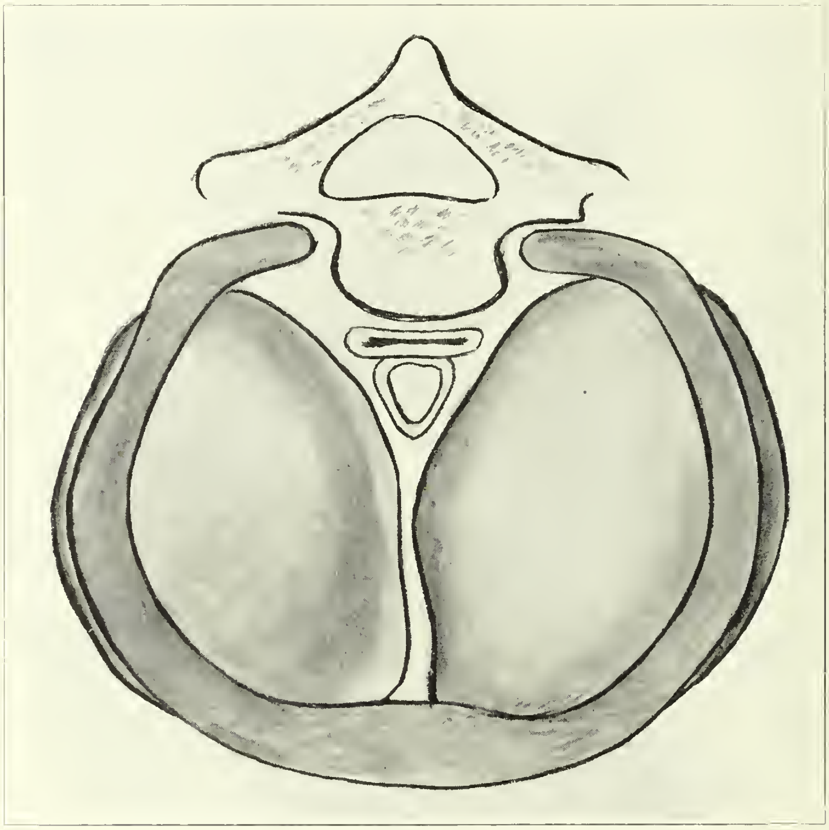
Fig. 5. Mrs. H. Intrathoracic goiter. View from above into chest

The time allotted is too short to speak of the large subject of exophthalmic goiters. Ligation ought generally to be followed by resection. A close and competent watching after the ligation may avert a secondary resection, especially if three arteries (both superior thyroid arteries and one inferior) are tied off with their corresponding veins. Resection is the operation of choice; nevertheless ligation of three arteries has, even in very severe exophthalmic cases, given me complete cures lasting now in one case twelve years, in another twelve and one-half and in one case sixteen years.

DISCUSSION

Dr. E. S. Judd (Rochester, Minn.): Dr. Schwyzer has covered his subject so thoroughly I do not deem it necessary to consume very much time in discussing it. I was interested to note how quickly he disposed of the subject of hemorrhage, which, until recently, was one of the large subjects in the consideration of thyroid operations. This factor has been handled more successfully since we learned to take care of the superior thyroid artery. In our earlier cases we sometimes included the edge of one of the muscles in the ligature, and bleeding from the superior thyroid occurred when the movements of the patient in waking up from the anesthetic caused the ligature to slip off.

Regarding compression of the trachea or tracheal collapse: We have heard of sudden deaths from tracheal collapse, but have not observed an accident of that kind. We have, however, observed cases such as Dr. Schwyzer mentioned of a tumor being removed from one side, and as soon as removed the trachea was compressed by the opposite lobe. In these cases it is our practice to suture the remaining lobe to the sternocleidomastoid muscle to some fixed structure, in order to hold the trachea open. In the carcinomatous cases the tracheal ring is, of course, softened, and the trachea collapses.

A peculiar accident happened while I was operating on a case of retropharyngeal thyroid. The enlargement apparently was on one side, and in making the incision to remove the lobe I broke through the muscular tissue and opened the esophagus. The esophagus was pushed to the same level of the larynx, and the lobe presenting on the left side was in reality the right lobe. When the mistake was discovered and the lobe removed there was a cavity behind the larynx and trachea large enough to admit the entire hand. The esophagus was closed, and the patient made an uneventful recovery. Hoarseness persisted for a few weeks.

We had one case of retropharyngeal tumor in which the larger part of the growth presented behind the pharynx as one of the upper poles of the thyroid. This tumor almost completely filled the nasopharynx.

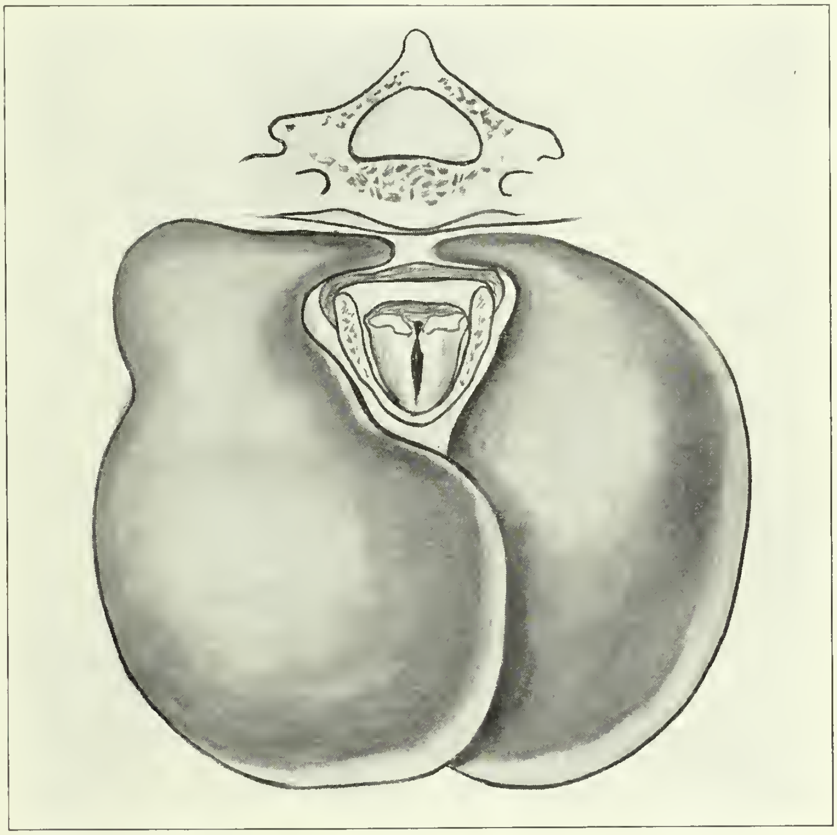

Fig. 6. Mrs. C. Circular goiter (retropharyngeal).

With reference to injury to the recurrent laryngeal nerve: It is important to make a laryngoscopic examination before operation. In a series of examinations made in our clinic, it has been shown that one per cent of individuals without goiter and from unknown causes have total paralysis of one cord with no vocal difficulty; six per cent of individuals have partial paralysis; and a large percentage of patients with substernal and intrathoracic thyroids have total paralysis of one cord. It is interesting to note that patients with total paralysis of one cord speak quite as well as the ordinary individual, and frequently they do not know that paralysis has occurred. If a cord be paralyzed on one side, and there be tumor on the other side, which will frequently occur if the tumor be on the right side, the left nerve is paralyzed. If both cords are paralyzed, the voice will be completely lost. We have not observed this condition. In a number of cases of temporary paralysis, we believe the nerve was included in the ligature. The observation of these various data are rather important in operating for goiter.

Dr. J. W. Andrews (Mankato): I simply want to emphasize one point that Dr. Judd has made, and that is in reference to hemorrhage from the superior thyroid artery. I have had one experience which taught me a lesson and which came very nearly being serious and it was, as Dr. Judd has intimated, in a case in which I included a portion of the muscle of the ligature and had not more than reached home from the hospital until I was called to return to the hospital and found my patient bleeding profusely. I controlled the hemorrhage, and the patient recovered.

In my student days we were taught, and much emphasis was placed upon it, the importance of hemorrhage in all surgical operations. That is all right, but with our modern appliances, with artery-forceps, we do not meet with much hemorrhage, but when it comes in a case of exophthalmic goiter it is of the greatest importance that, so far as possible, we secure the blood-vessels before going on with the operation. Those of you who have had experience in removing these goiters know that, if you cut a vessel of considerable size before you secure it, it is hard to control the hemorrhage. One of the dangers of the operation in connection with cases of exophthalmic goiter is hemorrhage. This fact cannot be emphasized too much, and any of us who operate for exophthalmic goiter ought to bear in mind the great danger of this hemorrhage.

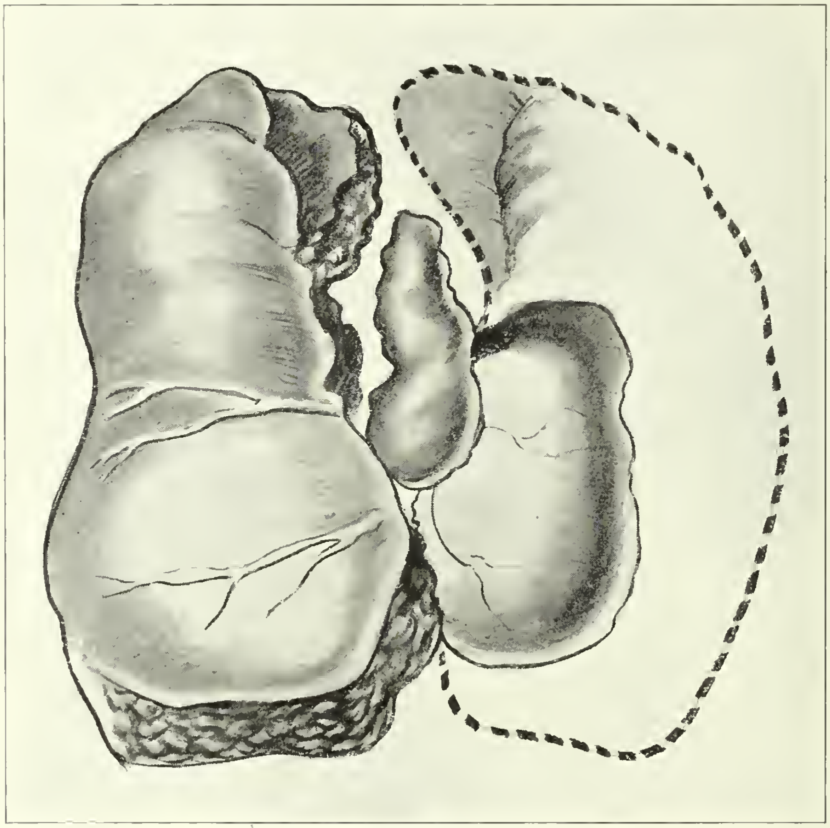

Fig. 7. Mrs. C. Circular (retropharyngeal) goiter. Drawing of fresh specimen as removed at operation. Dotted line shows area left in.

Dr. Arthur T. Mann (Minneapolis): In regard to the question of hemorrhage at the time of the operation: I think Dr. Halsted of Baltimore has given us one of our best hints, and that is to get hold of the goiter, the lobe as we remove it, and put it under gentle traction. If you do that it will stop almost all hemorrhage during the time of the operation. The operator can either do that himself or he can change and have his assistant do it. If he puts on a little tension it will stop the extra hemorrhage, which is so annoying at the time of the operation. Again, no muscle should be included in the ligature, of course. The pulling of the muscle on a ligature is the most common cause of secondary hemorrhage.

The parathyroids have not been spoken of, and it is hardly necessary to say that these must always be left. The patient has tetany if they are gone, and the way to leave them is to leave the posterior portion of the capsule. These parathyroids can often be seen during the operation if the posterior portion of the capsule of the gland is left.

In regard to substernal thyroids: They must be removed. We sometimes have a very annoying dyspnea during the operation, and some patients actually die on the table from the stoppage of their breathing. There is one important point to be remembered, and that is, when the vessels are ligated the tumor begins to swell from passive congestion. My suggestion would be to loosen around the portion which is substernal before all ligation is done or before much ligation is done. Get it ready so that it can come out, and then if the patient stops breathing during the operation, get it out rapidly, and you are safe in most cases.

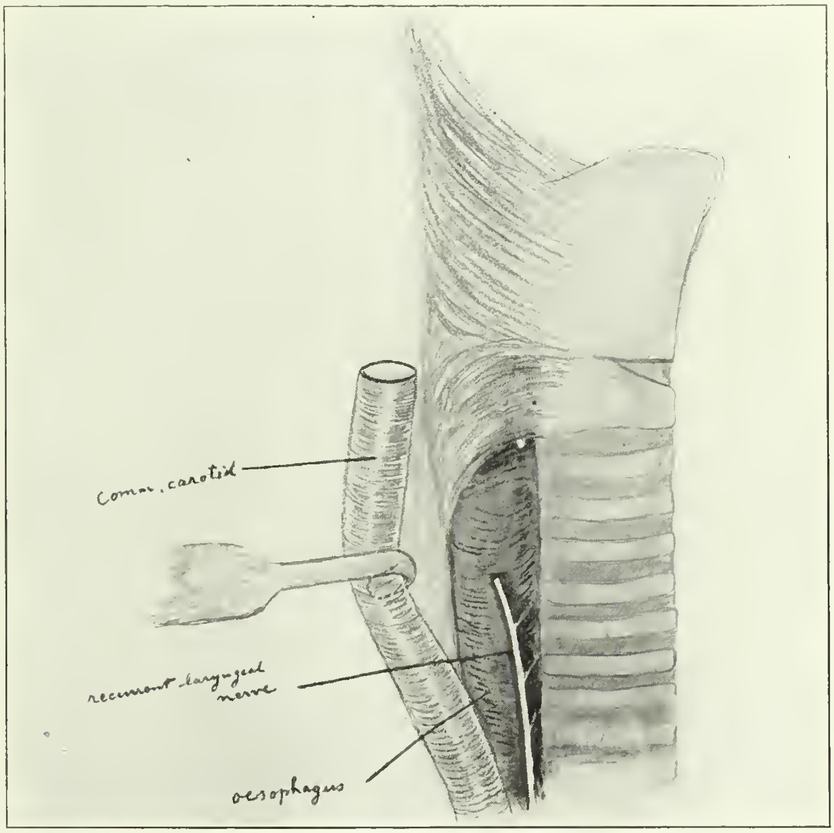

Fig. 8. Miss H. Schematic representation of findings at operation for suture of injured recurrent laryngeal nerve.

NOTES ON THE ANATOMY OF THE FEMALE URETER AND METHODS OF REPAIR OF INJURED URETERS*

By M. C. Johnston, M. D.

ABERDEEN, S. D.

It is unnecessary for me to dwell at length upon the anatomy of the female ureter, but let us remember that the ureters are tubes twelve to fourteen inches long, lying behind the peritoneum, and their *average* caliber is from one-sixth to one-eighth of an inch, not quite so large as a 22-caliber rifle cartridge, but about the size of the straw that one gets with his lemonade. The upper extremity of the ureter is funnel-shaped where it merges into the kidney pelvis, but becomes narrower just below this point or within one and one-half inches. There is a slight narrowing also where the ureter crosses the common iliac, and a decided narrowing within the bladder walls. It is at the points just below the kidney, and within the bladder wall, that calculi are most often found lodged.

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*Read at the 31st annual meeting of the South Dakota State Medical Association at Mitchell, May 22 and 23, 1912.

The ureters are slightly flattened anteroposteriorly. They are composed of an outer fibrous or serous, a middle muscular, and an inner mucous coat. These coats are continuous with the corresponding coats of the bladder below and of the renal pelvis above. The muscular coat extends into the bladder wall beyond the ureteral orifice on each side, and passes on each side of the trigonum toward the neck of the bladder. Another set of muscle fibers extends to and into the vesical outlet, upon its posterior aspect, which assist in opening and closing the outlet to allow the passage of urine from the bladder.

The lower ends of the ureters are not provided with valves, but the urine is prevented from regurgitating by the pinching action of the muscle fibers in the bladder wall, and this action is assisted by the obliquity of the course of the ureter through the wall.

There is a small amount of glandular tissue in the ureteral wall, especially at its upper end, lying between the epithelium, which is of the type called transitional, and the muscular coat, and some mucous glands have been demonstrated in the mucosa. There are also some lymph-channels, which unite in the serous coat to form larger canals which extend upward to the renal pelvis. These lymphatics are supposed to play quite an important part in the extension of infections from bladder to kidney. The arterial supply of the ureters arises from the renal, middle hemorrhoidal, inferior vesical and common iliac or hypogastric. The nerve-supply comes from the inferior mesenteric, spermatic, and hypogastric plexuses of the sympathetic.

In the abdomen the ureter corresponds to a line drawn from the junction of the middle with the inner third of Poupart's ligament, to the tip of the ninth rib. It lies upon the body of the psoas magnus muscle. At about the middle of its course it is joined by the ovarian artery and veins. The genito-crural nerve passes beneath it, and on the right side it lies close to the vena cava. At the brim of the pelvis it lies upon the common illiac artery, crossing it about 1¼ inches from the middle of the promontory of the sacrum. The ovarian vessels cross the ureter, leaving it at the brim of the pelvis, where they enter the upper portion of the broad ligament. On the right side the ureter lies directly behind the caput coli and ascending colon; on the left side it lies behind the sigmoid flexure and descending colon. Within the pelvis, the ureters lie behind the peritoneum of the posterior lateral pelvic wall, close to the internal iliac artery; then they turn forward crossing under the uterine artery and veins, and pass between the layers of the broad ligament near its base about equidistant from the cervix and pelvic wall, on the left side being somewhat nearer the cervix. Beyond the cervix they lie at first parallel to the upper vaginal wall, which they partly cross to enter the bladder. At the side of the uterus, where they pass through the broad ligament, the ureters are on the average about an inch or a little less from the body of that organ, and the uterine vessels cross in front of them at about the level of the internal os. They lie about one-half inch to either side of, and a little in front of, the cervix when viewed from below, and turn forward to enter the bladder about one inch in front of the cervix. The last one and one-half inches of ureter are not covered by peritoneum.

The ureters can be felt per rectum by the examining finger, where they cross the iliac artery, and the ureteral folds, seen in the vault of the vagina, serve to locate their position there. The anatomy of the ureters concerns us mostly when about to perform hysterectomy, or when removing adherent masses of tubes, ovaries, and broad ligaments from the pelvis, or in any pelvic operation in which the operator is cutting or clamping in their vicinity, and again of course when they are suspected of harboring stone. In cases in which the operator is sure that the mass to be removed is not carcinomatous, a pair of ureteral catheters can be introduced before operating and left *in situ*, to accentuate their position so that the cutting or clamping of them can be more easily avoided.

In operating for ureteral stone, the ureter can be approached extraperitoneally throughout almost its entire length through an incision in the flank, and in those cases where the stone is near the bladder it can be removed extraperitoneally through a suprapubic incision. The stone in all cases should be located by the aid of the *x*-rays and the ureteral probe before the operation is begun. The ureter over the stone should always be incised in a longitudinal direction, and the wound should be closed by interrupted or continuous fine catgut sutures, chromic preferred, which do not penetrate the lumen of the tube.

It occasionally happens, during an operation upon the pelvic organs, that the ureter is accidentally cut, or clamped so as to seriously injure it, and sometimes it must be sacrificed in the removal of carcinomatous masses from the pelvis, so it is well for us to pay some attention to methods of repair of injured ureters. The choice of methods depends largely upon the degree of injury, that is, the amount of destruction and the length of the proximal end of the ureter. If the ureter is simply cut, or clamped so that there is no great loss in length, it can be repaired by anastomosing the proximal and distal ends, directly; or if the distal end is too short, the proximal end can be inserted into the bladder higher up, and sometimes it has been implanted into the bowel or vagina, or brought through the skin, although these last-mentioned procedures are to be avoided whenever possible, on account of the distressing symptoms which invariably follow any of them.

We shall first consider uretero-ureteral anastomosis, or the joining together of the two ends of a divided ureter. The cut ends can be directly approximated by a few stitches, but the danger of leakage is great, and the lumen is apt to be constricted at the point of repair, so that some modification is usually followed, the most popular probably being that originated by Van Hook, in which he first ties the distal end and then makes an incision about one-half inch long and about one-fourth inch below the ligature. He next passes a suture of silk or chromocized gut from without inward through the wall of the proximal end, about one-eighth inch from the cut end, then from within outward through the wall at a point about one-eighth inch from the first, and on a line parallel with the cut end. Then the ends of this suture are passed through the walls of the distal end from within outward, entering the lumen through the incision previously cut in it, and emerging about one-eighth inch apart, about one-fourth inch below the end of the incision.

Traction on this stitch now brings the proximal end into the distal end through the incision, and it is there fastened by tying the suture. A few interrupted stitches or a continuous suture of fine gut, through the outer coats only, now serve to anchor the ends more firmly together and prevent leakage. An incision about one-fourth inch long is cut in the proximal end, starting at the cut margin and proceeding upward opposite to the point of entrance of the traction suture, which increases the lumen.

Emmett's method is different only in that he uses three anchor or traction sutures instead of one. The practice originated by Bovée is to cut both ends of the ureter obliquely, and then approximate them directly, the oblique cutting serving to increase the lumen, and render stricture less liable. Of the three methods Van Hook's is probably the easiest to perform, and as good at least as either of the others, so far as results go. Whenever possible a flap of peritoneum should be sewed in place over the site of repair, as a further protection.

When the ends cannot be approximated, on account of destruction or removal of the distal end, the proximal end should be directly implanted into the bladder wall as near as possible to its original site. Buttons similar to the Murphy button have been devised to aid in this operation, but I would not advise their use, as it is frequently necessary to perform another operation to recover the button, and another reason is that they do not permit of the proper slanting of the implanted ureter. Neither do they have the advantage of more rapid adjustment. Their one point of merit seems to be that they do maintain the ureteral outlet, preventing stricture.

The ureter can be implanted into the bladder in the same manner as has been described for uretero-ureteral anastomosis, considering the bladder as the distal end of the ureter; or a very good method is to make a transverse incision into the bladder as low down as possible, cutting down onto the point of a probe previously passed into the bladder, or a pair of long-bladed forceps is even better than the probe, as it may be used to grasp the end of the ureter and draw it into the bladder. The incision through the bladder wall should be at an oblique angle, cutting the different coats at a different level, so that the ureter will have the oblique insertion that is natural to it when the wound has healed. The ureter is then to be fastened to the bladder by three or four through-and-through stitches, and the rest of the wound closed by stitches through the serous coats only. All sutures must be placed so as not to occlude the lumen of the ureter and must also be placed so as to prevent the lumen becoming closed later through the formation of a stricture.

When the proximal end of the ureter is too short to permit of ready implantation into the bladder, the latter organ can sometimes be loosened from its bed and moved toward the side of the cut ureter, thereby gaining quite an appreciable amount. The bladder can be fastened in its new bed with a few stitches through the outer coats only. If the ureteral remnant is too short for this procedure to avail, and the patient's condition will warrant, and we are sure that the other side is not diseased, it is justifiable to do at once a complete removal of kidney and ureter. If the patient's condition will not warrant immediate nephrectomy, the ureter can be led through a stab in the skin of the loin, and fastened there with two or three stitches, until such time as a radical operation can be performed. Retroperitoneal drainage can be established by stripping the peritoneum from the abdominal wall opposite the site of repair, to some point in the retroperitoneal space, and inserting gauze or a cigarette-drain through a stab in the skin. In those cases of operation for ureteral stone, of course the drainage could be brought through the original incision.

I do not personally believe a surgeon is justified, except possibly in extreme cases, in making anastomosis between ureters and the gut, both on account of the irritation which the urine causes in the intestine, and on account of the certainty that, sooner or later, generally sooner, the kidney will become the seat of infection, which travels up the ureter from the gut and necessitates the operation of nephrectomy.

Such anastomosis has been performed in quite a number of cases by good men, with an immediate mortality of from 25 per cent to 60 per cent, while the mortality from end-to-end anastomosis and ureterovesical anastomosis, in a large series of cases by a number of different operators, amounted to only about 2 per cent of deaths with 5 per cent of failures, a remarkably good showing. Several cases have been reported in which it became necessary to remove the bladder, and in these cases the ureters were anastomosed or implanted into the urethra. Other cases have been reported in which this was done as a preliminary to bladder-extirpation. The operation was successful in about 80 per cent of the cases, but the patients were compelled to wear a receptacle for the urine.

In any case of ureteral repair the bladder should be drained for several days, so that there will be no tendency to leakage through pressure of the urine.

Many brilliant men are experimenting daily with different methods of repair. Boari, in the *Annals of Diseases of Genito-Urinary Organs*, suggests that it is possible to bridge the gap between a short proximal end and the bladder, by making a tube from the bladder substance, as follows: Make an incision in the bladder wall, starting as near the peritoneum as is safe, and extending the incision forward as far as is necessary to make a flap a little longer than the defect to be bridged. Make the flap wide enough so that, when it is turned edge to edge, it will make a tube, the caliber of which is large enough to surround the ureter. Lift the flap upward and backward, turning edge to edge and suturing into a tube which surrounds and is sutured to the cut ureter. The bladder wound is closed with a row of Lembert stitches. Morris suggests bringing the cut end of the ureter through the skin as low down as possible, and later making a tube of combined skin and bladder wall to bridge the defect. Dr. J. J. Gilbride, of Philadelphia, has experimented with dogs, and suggests the possibility of bringing the cut ureter across behind the peritoneum, and anastomosing it to the ureter of the other side by Van Hook's method. The danger from this operation would be that the ureter on the well side might be occluded by the implant, and if the cut ureter was infected there would undoubtedly be an extension to the well side. These last-mentioned procedures are as yet only in the experimental stage, and I know of no case in which any of them have been practiced on the human subject. They would be necessary only in extremely rare cases, and they are interesting mainly for the reason that we like to see how much we can do in making advance in plastic surgery.

DISCUSSION

Dr. G. G. Cottam (Sioux Falls): I believe this is a subject that ought to be very thoroughly threshed out and understood. We do not very often have occasion to repair the ureter, but I think it sometimes happens that the ureter gets tied in during hysterectomy and is overlooked. While not necessarily a fatal accident, it certainly diminishes the patient's chance of recovery and when suspected one should always spend a little additional time in examining the base of the broad ligaments. I have had cases of my own that I have not felt sure about come out all right, but they gave me some uneasy moments until after I had subjected the parts to close scrutiny.

We should be well up in the technic of repairing the ureter so as to be ready to take care of an accident of any kind that may be liable to happen.

Dr. Franklin O. Wright (Minneapolis, Minn.): There is one phase of injury of the ureter that was not touched upon in the paper, and that is as to what should be done in case of the injury of the ureter where we cannot insert it in the bladder or put it in the rectum. In these cases we have, in the past, been forced to do a nephrectomy. Later experimental work shows that it is perfectly safe where there is no infection in the ureter or in the pelvis of the kidney to simply ligate the ureter. After ligation of the ureter this kidney becomes a non-functionating organ and slowly atrophies.

Dr. Edward S. Judd (Rochester, Minn.): I enjoyed Dr. Johnston's paper very much. Like Dr. Wright, we have found occasion to ligate the ureter several times, when the patient was in such a bad condition we did not wish to do a nephrectomy and experienced no trouble. I recall rather an exceptional case. Some years ago we operated on a patient with extensive carcinoma of the cervix, doing a total abdominal hysterectomy. No urine was passed the first day; the second day the patient was catheterized and passed a little blood, but no urine; the third day she was in such bad condition the only thing we could do was to open the pelvis of both kidneys through lumbar incisions and let the urine drain from these incisions. The woman improved quite markedly, and after the seventh day, very much to our surprise, she started to pass urine from the bladder, and by the end of three weeks all the urine was coming into the bladder and the lumbar incisions were dry. In this case the ureters had both been ligated with catgut though the lumen was restored as soon as the catgut absorbed.

Dr. M. C. Johnston (Essayist): I have not much to say in closing. I realize that this is a subject that most general practitioners and many surgeons know little about, and it is something that few of us have occasion to know anything about, for the reason that it is only, as one might say, by accident, or in very severe pelvic conditions, that we need to know much about the anatomy of the ureter. It is not often necessary to do an operation for the repair of injured ureters, as compared with other operations.

The cases mentioned by Dr. Wright and Dr. Judd, of tying off the ureter and simply dropping it back, with drainage, is something new, which is not mentioned in the text-books, and which is worthy of being thoroughly tried out. The average surgeon outside of the large institutions, however, will probably let the men in these institutions do the experimenting, and be ready to profit by their advances or mistakes. I cannot see that tying off the ureter and dropping it back with drainage, has any advantage over the method of anchoring the ureter in the abdominal wall. In the latter case your ureter is right where you can find it if wanted; no drainage need be instituted, and a future nephrectomy, if necessary, can be just as easily done as in the first case.

I think all will admit that the case of the woman mentioned by Dr. Judd is a very unusual case, and I am sure that he would not advise letting every case go as this one did, expecting such brilliant results. This case simply shows the wonderful things nature can do in the way of repair. The ureters are similar in structure to blood-vessels, and it is no more wonderful that their function should be restored by reason of the absorption of the obstructing clot than to have function restored in blood-vessels under similar conditions. The restoration of function under such conditions, however, is not to be looked for, as it is the exception, and not the rule.

PERINEPHRITIC ABSCESS: REPORT OF THREE CASES*

By Emil C. Robitshek, M. D.
MINNEAPOLIS

Various terms, such as *perinephritic*, *epinephritic*, *perinephric*, *circumrenal*, and *lumbar abscess*, are used, according to one's interpretation, to designate the condition a description of which I shall here venture briefly to portray. In attempting this, I shall confine myself to the one term, *perinephritic*, using it in its widest limitations to include all cases of suppuration, whether in the adipose, cellular, or fibrous tissues surrounding the kidney.

Of all extraperitoneal abscesses, the most frequent, as well as the most interesting, are the perinephritic. Though said to have been known to the ancients, and mentioned by several of the classical writers, we are without a systematic delineation of the same until 1839, when Rayer[1] published it in his "Malades des Reins." On account of its presumed infrequency, however, the profession regarded it as a rarity and in consequence assumed an attitude of indifference, which position is, to a large extent, maintained even at this date. While it is not my intention to convey the impression that these cases are common, nevertheless, I agree with Roberts[2] that they are more frequent and more often overlooked than the profession generally believes. It is to emphasize, if possible, the necessity of early recognition and treatment of these cases (statistics show that the mortality increases here, as time of surgical interference is delayed) that I am tempted to bring out the salient points of the subject and relate my experience with it.

As you know, the kidney lies upon a cushion of fat, which varies in amount with the nutrition of the patient. This fat is almost all on the posterior side of the kidney, very little, if any, being in front. The right kidney is in close relation with the liver and hepatic flexure of the colon and duodenum; the left is in contact with the pancreas, spleen, and descending colon, and is partially covered by parietal peritoneum. Both kidneys are separated from the peritoneum by loose subperitoneal tissue and are enclosed by a fibrous capsule, to which another capsule, the so-called fascia of Gerota, is attached. In connection with perinephritic abscess, this fascia is of considerable importance. It is divided into an anterior and a posterior layer, the former being continuous with that of the opposite side of the vertebral column, covering the vessels and ureters, opening at the outer border of the posterior layer, and passing below into the subperitoneal tissue of the iliac fossa. The posterior layer passes behind the kidney from the upper and outer border, and becomes attached to the periosteum of the vertebral column. Above, both layers are attached to the diaphragm; below, to the subperitoneal tissue of the iliac fossa, being thus directly continuous with the retroperitoneal tissue of the pelvis and iliac fossa.

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*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

Perinephritic abscess may be divided into two classes, primary and secondary. The primary is less frequent and so designated only in cases where the kidney proper is not involved, as evidenced generally by repeated, successive, negative urinary findings. This form is less frequent than the secondary and is accredited as being due to a strain, contusion, direct traumatism (LeDentu[3] claims 1/4), or as arising spontaneously. The secondary form is usually secondary to an infection in the kidney or a more distant organ. Guiteras[4] believes that nearly all cases arise from trouble in the kidney. Albarran[5] goes so far as to say that in one-half the cases the etiology of perinephritic abscess is not known. On the other hand, Küster[6], in a report of 236 cases, could trace only twenty-six per cent as being of renal origin. Herczel[7] believes perinephritic abscesses in many instances develop from small pus collections in the renal cortex instead of having a primary origin. Vaughn[8] thinks these abscesses are the result of infection of tissues immediately surrounding the kidney or some distant organ, as the appendix, gall-bladder, lung, pleura, or intestine. Adults are by far more frequently attacked, and of these the males are in the majority. Küster reports 140 male cases out of 208 cases collected. A few cases of perinephritic abscess in children are on record. Johnson, in a service of nine years at the Roosevelt Hospital, saw only one case in a child. Jacobi thinks that in children especially is constipation a large etiologic factor. Bilateral cases are rare, only seven cases having been reported in the literature. The predisposing causes are said to be tuberculosis, kidney stone, certain modes of life that call for repeated muscular efforts, as well as exposure to cold and wet, contusions, open wounds, and traumatism.

The importance which the older text-books have given to exposure and chilling as factors, has, in the light of modern pathology, been lost sight of. External violence, such as jolts, blows, and contusions in the kidney region, and acts by which extravasation of blood due to blood-vessel rupture may take place, are more frequently suggested as a cause. Thus DaCosta[9] relates seeing a young man who, jumping over a fence, strained his back and soon thereafter developed a primary perinephritic abscess. Stab and gunshot wounds of this region may easily account for a resulting abscess. Miller[10] believes that where the kidney itself is not involved, the abscess is due to bacterial invasion anywhere along the line of lymphatic drainage of certain defined areas, and especially of the lower genito-urinary tract and pelvic cavity. Not infrequently is this seen in patients following an operation upon the rectum, bladder, prostate gland, or testicle, or in cases of parturition[11] (puerperal metritis).

The diseases of the kidney itself which often cause perinephritic abscess, are pyelonephritis, pyelitis, pyonephritis, renal calculi, tuberculosis, and ascending and hematogenous infections. Among other conditions from which perinephritic abscess may arise are abscess of the liver, appendicitis, cholecystitis, abscesses of the prostate, spleen, or pancreas, salpingitis, typhoid fever, empyema, caries of the vertebræ, cystitis, felons, and furuncles. Cases are on record where the leaving of a permanent catheter in the bladder has caused such an abscess[2]. The pus which very often has a fecal odor on account of close proximity to the bowel, burrows in various directions. Most often it takes a downward and backward course, this being the line of least resistance, and becomes subcutaneous. Perforation of the peritoneum by the pus is rare. Inferiorly, it may burrow beneath the peritoneum and collect above Poupart's ligament or follow the peritoneum into the true pelvis. Superiorly, it has been recorded as piercing the diaphragm, making its way into the lungs, escaping by way of the bronchial tubes or into the free pleural cavity, and thus setting up a suppurative pleurisy. The pus has been known to invade the liver, spleen, pancreas, stomach, suprarenal capsule, small bowel, pericardium, bladder, vagina, urethra, scrotum, into the subiliac bursa, and the hip-joint, and may extend by continuity of structure from the membranous urethra, prostate gland, bladder, and seminal vesicles to the tissue around the kidney without involving the kidney itself to any notable extent.

The symptoms often vary with the cause and in the early stages are not infrequently vague and difficult of interpretation. Where the abscess is secondary, the symptoms are often masked by the primary affection, while in the primary form of the abscess the symptoms may come on suddenly or by gradual onset. The pain, though most frequently dull and constant, may occasionally be deep seated, paroxysmal, and sharp. Its area of distribution is wide, due to the irritation of the nerves of the lumbar plexus, which is in close proximity to the abscess, being referred to the thigh, hip, knee, iliac crest, and genitals along the spermatic cord, and towards the sacrum. Pain is also increased by pressure over the loin, and, according to the severity of the case, by straining, coughing, turning in bed, standing, jarring, extension of hips, and any movement of the trunk. The most tender spot seems to be that over the triangle bounded by the erector spinæ muscles, the 12th rib, and the internal oblique muscle, and is one of the earliest, constant, and most dependable symptoms. When the abscess is located on the right side, tenderness over McBurney's point may be present, though, as a rule, less severe than that over the loin. The tumor mass generally formed by the abscess is round, smooth, elastic, and as it develops fills out the slight hollow in the loin between the ribs and the crest of the ilium. This mass can generally be felt in front and in the back, and moves very little, if any, with respiration. The measurement of the affected side shows an increase of one or two inches over the unaffected side. The pulse, at first full and strong, becomes weaker and more rapid as sepsis increases. Fever is always present, ranging from 100 to 103 degrees Fahrenheit, and at times resembles even a typhoid course. As the disease progresses the fever shows the typical septic curve with sweating and chills, coated tongue, flatulency, constipation, loss of appetite, and nausea. Flexion of the thigh of the affected side is seen in varying degrees in different cases. Nieden[12] reports it present in 27 out of 106 cases. There is more or less stiffness in walking with an inclination of the body to the affected side, and, when sitting down, resting upon the opposite tuberosity ischii. Flexion of thigh causes no pain, but extension of the same does. Abduction and adduction are not interfered with. The patient finds it difficult to stoop.

Fluctuation is rarely to be detected, even when the amount of pus is large. As the pus increases, the abscess is outlined by dull percussion. Edema of the skin and redness of the same over the site of the abscess are sometimes seen in the old-standing cases. Where the kidney is not involved, neither blood nor pus will be found in the urine. A passive hyperemia is said at times to produce an albuminuria. Leucocytosis is the rule. Emerson[13] says the count runs from 19,000 to 360,000. Repeated examination of the cases I saw averaged about 15,000. In 36 cases seen by Miller, the average count was 24,700. Jaundice is a very rare symptom. In children the symptoms may set in abruptly with chills, fever, or localized pain, or may start in gradually with stiffness of the spine, and lameness referred to the hip and not infrequently confounded with diseases of the same.

With all these numerous symptoms in mind, the diagnosis in the early stages is attended with more or less uncertainty. Gibney stated that in 50 per cent of the cases an erroneous diagnosis had been made. In making a differential diagnosis several conditions with similar symptoms must be considered. In all cases a painstaking, careful history should be made, and, needless to say, the well, as well as the affected, side examined and compared. Among the conditions to be excluded in making a diagnosis are lumbago, pleurisy, typhoid fever, hydronephrosis, kidney cysts, appendicitis, solid tumors, caries of the spine, hip-joint affections, tumors of the liver, psoas abscess, pyonephrosis, and kidney tumors and affections. DeDentu tells of a case he brought before the class, that of a young man with a fistula in the right lumbar region, which, the patient stated, had resulted from opening an enlargement appearing during a recent attack of typhoid. The lecturer questioned the diagnosis, suggesting that it was rather the febrile disturbance of a septic condition. The cause of the deep lumbar swelling was clearly perinephritis, which Le Dentu ascribed to a possible gummatous deposit in that region. Enlarging the sinus and establishing a counter drain was the course of treatment, which resulted in a cure. Küster reports one case treated as typhoid for one month in spite of the leucocytosis. Another case was operated upon for acute appendicitis. Deaver recites a case he could not differentiate between high appendiceal and perinephritic abscess until operation. At the operation he found pus beneath the fibrous capsule of the kidney and more in the adipose tissue. Fever was high, urine normal, and leucocytosis 30,000. If, after a painstaking history and careful examination, a diagnosis has not been made, a puncture with an exploratory needle may be of value. Needless to say, a long and large-caliber needle should be employed for this purpose. Gerster[14] reports a case where a diagnosis of perinephritic abscess had been made and four distinct probatory punctures made with an aspirating needle without a result. The next day the pus perforated into the pleura, and a fatal pyothorax developed.

As in all cases of suppuration, the treatment is surgical and should be instituted as soon as the diagnosis is made, in order to prevent the pus from burrowing and possibly perforating into the lungs or other organs. Incisions should be made into the outer edge of the lumbar quadratus muscle, in the costo-iliac space. The incision should be made large enough to prevent a too-rapid healing. If the pus is in the adipose tissue it will now come out, but if beneath the fibrous capsule of the kidney, this capsule must be incised. Secondary pockets should be carefully looked for. The origin of the pus may still remain in doubt, and for this reason the kidney should be raised up into the wound, and both it and the ureter carefully inspected. A nephrotomy might be indicated and should be performed, but generally later if pus has been found, although nephrotomy usually ends in nephrectomy. After the preliminary opening of the abscess, drainage-tubes and gauze should be inserted into the deepest portion of the wound, and thorough drainage instituted. As the pus decreases and the wound tends to heal, the tube and gauze are gradually removed. Sometimes, a troublesome discharging fistula remains, in which case a second opening of the wound is necessary, in order to ascertain the reason of the continued discharge. Such was a feature of the first case I herewith desire to report, a case of primary perinephritic abscess.

Case 1.—Mr. R. W.; aged 26; occupation, manager and salesman in a paint-manufacturing establishment; of good habits, and negative family as well as personal history. Patient began to feel tired and listless, with slight bodily aches, on November 26, 1910. However, he kept on with his daily routine of business as usual. Two days later he awoke during the night with a sharp pain over the right loin. I was called early that morning and found the patient in bed, with a temperature of 99.6 degrees and pulse 90. There was some slight tenderness on deep pressure over the right loin, with a history of aches and slight pains over the body in general. He denied any history of venereal trouble, but admitted having strained his side while doing some heavy lifting a week before. At that time I made a diagnosis of influenza, but, as the fever kept up for a few days, I took a Widal test, which proved negative. The urine examination proved absolutely negative. A leucocyte count averaged about 15,000. The tenderness became more marked, and the diagnosis was now certain. Consultation was called, and it was agreed to operate on the following day, December 13, 1910. The abscess was opened, and about a pint of pus evacuated; and a drainage-tube and gauze were inserted, the patient leaving the hospital in about two weeks, practically well, the wound, however, still slightly discharging. The patient gained in weight and color, but the fistula refused to heal. Finally, on January 10, 1911, it was decided to open the wound wide, and again drain thoroughly. This was done under ether anesthesia at his home, but again the tract refused to heal. The urine now became cloudy from pus and blood for the first time. Gradually the pus decreased, but never entirely cleared up. The blood disappeared entirely from the urine. The patient had a slight daily temperature. Beck's bismuth paste was tried, in order to heal up the sinus which still discharged pus, but without avail. Finally he was again brought to the hospital, and the wound again opened on February 15, 1911. This time the kidney was brought up into the wound, inspected, and a few calcareous deposits on the surface found, from which the pus evidently originated. The kidney was promptly removed, after which the patient made an uneventful recovery. The patient gained in weight, appetite, and color, and is again at his place of business as usual every day. The remaining kidney functionates perfectly.

The second case was that of perinephritic abscess following parturition. The patient was a very intelligent woman who herself wrote out her history, which I here repeat as she wrote it.

Case 2.—I am thirty years old. When a child I was subject to convulsions. At four years of age I had a severe attack of pneumonia, and at six, had diphtheria, and it was no mild form, either. At eight, I had the whooping-cough, and at ten, had a mild form of scarlet fever, but went out and caught cold, which settled on my kidneys. Had swollen limbs for several months. The year I was sixteen I was troubled quite often with a headache, and also became subject to quinsy, from which I sometimes had several attacks every winter until I was twenty-five. When nineteen, had the jaundice, also measles, and a half year later the mumps. From that time I have been pretty well, though have had bronchitis quite bad several winters. There is no tuberculosis in the family on either side, nor cancer. My father died from typhoid fever; my mother is still living. I have one child, born last October. It was a natural birth, labor lasting only about four hours, no instruments being necessary. The child is healthy. Had a little trouble passing my urine afterwards; the doctor said the urethra had been bruised a little. I felt well and strong for the next two or three weeks, then I noticed my appetite began to fail, and I would have fainting spells and night sweats. I began to feel pain in my side, and a couple of weeks later there were a couple of nights it ached so I could not sleep. It was sore when I touched it, and I had to help my right limb into bed and up steps. I felt miserable, though I had almost no pain. I grew thin and pale. This went on till two weeks before Christmas when we called the doctor. On making an examination, he discovered a bunch in my side which he decided was the kidney. A week later he made another examination, making sure it was the kidney, which was hanging quite low in my side. He also examined my urine and found pus in it. He then said there must be an abscess near the kidney, and that an operation would be necessary. My temperature would run high every evening, a fact I noticed a week or so before the doctor was called.

This patient entered the hospital December 22d, 1910, was operated upon December 26, 1910, by my Chief, Dr. G. G. Eitel, and left the hospital January 14, 1911. Her temperature before the operation would run up as high as 103.5 degrees every evening. Urine examinations revealed pus and traces of albumin; no casts. Her leucocyte count taken daily averaged 15,000. On entering the hospital a distinct large mass about the size of a child's head in the left side could be plainly felt. It moved little, if any, with respiration and seemed to be attached to part of the kidney. It was easily palpated bimanually in the left flank, and was tender on pressure. The diagnosis of perinephritic abscess was made and confirmed at the operation. The abscess was opened and drained, and the patient rapidly improved and has since remained well.

I am indebted for the history of the next case to Dr. E. Miller, of Aberdeen, S. D., who referred the case to Dr. G. G. Eitel.

CASE 3.—E. A., aged 55, weight about 230 lbs. First had an abscess of the left kidney twenty years ago with pus appearing in the urine. The abscess opened itself on the back. Here it discharged freely for eight months and then closed again spontaneously. About six years ago he had some pain in the back and over the course of the left ureter and again pus was discovered in the urine for the next two or three weeks, after which the pain subsided, and the pus practically disappeared. He then remained well up to the first of November, 1910, when he began to have slight chills, low fever, and furred tongue, with tenderness and pain over the course of the left ureter, so severe at times as to require morphine. Finally this attack of pain subsided with the presence of pus in the urine. Repeated microscopic examinations of the urine showed only pus. There was at this time a heaviness, as he called it, over the left kidney, but not a great deal of pain. After six or seven weeks the abscess pointed in the back, and Dr. Miller opened it, which resulted in an evacuation of pus and a clearing-up of the urine, which, however, became cloudy again in a few days. The temperature ranged from 99.5 to 101 degrees, and the pulse from 90 to 110. Upon further questioning the patient, we find he had, thirty years ago, sudden, severe pains in the left side, at which times he would have to lie down on his back and flex his thigh so as to make pressure over the course of the ureter, and after an hour or two he would get better and be all right for possibly six or eight months. He entered the hosiptal here March 25, 1910. We enlarged the incision which was discharging greenish-yellow pus and made a careful digital exploration, after which the opening was drained. He gained strength enough to return to Aberdeen, but came back again in a few weeks, as the sinus was still discharging pus. We employed daily irrigation of boric acid or normal saline solution into the wound for a few weeks, after which he returned home greatly improved and has remained perfectly well ever since. This, I believe, was a case of a renal calculus, either in the kidney or the ureter, which eventually was passed or washed out and thus allowed the pus to discharge into the kidney and wound to heal.

As compared to some cases, my report is meagre, yet it aids, I believe, to emphasize that which I wished to impress mostly, namely, that cases of perinephritic abscess are not rare and that successful treatment depends on early recognition and early incision, thus evacuating the pus before it has had time to burrow extensively.

The chief symptoms which should aid in the diagnosis are, first, the history; second, urine analysis; third, the range of pulse and temperature; fourth, the leucocytic count; fifth, and most important, the ever-present point of tenderness between the internal oblique, the 12th rib, and the erector spinæ muscles.

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MINERAL POISONS

Numerous cases of poisoning by mercury, lead and arsenic have been reported so frequently that no one can dispute the fact. A lesser number of poisonings by zinc, copper, tin and antimony are on record. An unusual form of mineral poisoning affecting the nervous system has been brought out by Dr. Louis Casamajor of New York who described a series of cases due to manganese.

This mineral is commonly found in zinc mines or in combination with iron ores which contain zinc.

It was thought at first that miners who were poisoned by minerals were suffering from arsenical salts but in the mines investigated by Dr. Casamajor no arsenic was present and the cases he saw were induced by manganese. The methods of grinding these ores and the electromagnets used in separating them seems to show that maganese may produce a fairly clear clinical picture.

The symptoms noted in Dr. Casamajor's cases were mainly disorders of gait and equilibrium. The patients exhibited a peculiar propulsive gait. They could walk on level ground without much difficulty, but if they encountered a down grade they were forced to run in order to maintain their equilibrium, and if the grade was too steep they could not stop unless they deliberately ran into an obstacle. If, however, they attempted to restrain themselves there was a retropulsion movement which was followed by a backward fall. There was also a lack of harmony of action in other movements (asynergia) allied to propulsion and retropulsion.

The course of the disease was prolonged and was accompanied by mental symptoms, torpor, stupor and confusion.

The method of absorption of manganese as in other mineral dust, was through the digestive system rather than through the respiratory tract. The lungs are tinted by the dust, but the central nervous system is probably affected through the absorption of the poison from the intestinal mucous membranes.

The prognosis is bad in the majority of cases leading to helplessness and death after a long period of illness.

It is well known that many cases of lead poisoning end in recovery, but manganese poisoning is apparently worse than either lead or arsenic. Men that work in ore mines in which the ore is reduced by crushing and separating processes follow a dangerous occupation, as there seems to be no safeguard against the impalpable dust that fills the air. Such workers usually have a pasty look and cannot long continue in the work without injury to their health.

It is rather marvelous how many workmen can work in lime and rock dust without apparent injury and it is evident from Dr. Casamajor's findings that certain kinds of dust, particularly manganese, are pernicious and poisonous.

THE SIGNIFICANCE OF MEDICAL INSPECTION OF SCHOOL CHILDREN

The widespread attempt to increase the benefits of medical inspection of school children was illustrated at the recent congress on Hygiene at Washington. Papers from eminent sanitarians from the continent and from various parts of the United States were discussed in such a manner as to leave no doubt as to the good of the work already done and the ultimate results after a few years.

In the older countries inspection is carried out as a part of the regular curriculum and there is no evasion or objection to the system as the government stands behind it and has shown in many ways the improved status of school children.

In this country it is still comparatively new and its virtues are not thoroughly understood. In many of the Eastern States the work is thorough and covers large fields. As a result of a letter of advice and instruction sent out by the Minnesota State Board of Health and the Superintendent of Public Instruction, the teachers and principals as well as the county superintendents all over the State are prepared for the next step toward statewide inspection.

This letter has attracted the attention of Dr. W. H. Allen, chairman of the Bureau of Municipal Research in New York and from his office twenty thousand postals have been sent to educationalists all over the country, urging that the Minnesota plan be adopted. A part of this scheme was the employment of Dr. Ernest B. Hoag of California as Special Director of School Hygiene under the direction of the State Board of Health. Dr. Hoag has already visited a few of the cities of the second class and has given practical instruction in normal and grade schools and has appeared before meetings of county superintendents.

The result of his work has been extremely gratifying and an interest in the work has been stimulated in teachers and students. He has spent a week at the University of Minnesota dividing his time among the departments that will be foremost in the work of future instruction.

In the limited time Dr. Hoag has been in the State he has been able to substantiate a few well-known facts. From 40 to 60 per cent. of all school children suffer from some disorders, malnutrition, throat, ear, eye or nose disease, dental defects or neglect, skin eruptions, communicable diseases and mental and nervous disorders.

Two per cent. of all school children are permanently deficient from defects or disease of the nervous system. This means that in the large schools there must be a considerable number of retarded children who are indirectly or perhaps directly the cause of keeping other children from advancing in a normal manner. It will be some time before the general public will awaken to the fact that 50 per cent. of children need medical attention. Teachers even do not appreciate this fact although the children are in front of them daily. This is not strange, however, as physicians and parents overlook seemingly minor ailments that are responsible for much of the misery of child life in schools.

It is almost incomprehensible to the physician who is interested in the development of the healthy child that any one should object to any measures which would insure progress in health and education. The fault lies in the lack of knowledge of the causes and symptoms of illness among the laity. Time and persistent explanation will eventually bring about a better understanding.

Minneapolis made a good start in medical inspection, but it was very difficult to get sufficient funds to cover the city schools with inspectors and nurses. The board of tax levy gave the board of education a certain amount of money with a recommendation that some of their expenses should be cut down. It did not, however, include medical inspection in the cutting process, but the board of education included it. The lady member of the board, Miss Snow, objects to the expenditure of money for medical inspection until overcrowding is done away with. She evidently does not realize that the trimming out of the unfit by inspection will accomplish the object she has in mind. Miss Snow is a candidate for re-election in November and her attitude on medical inspection will either bring her votes from Christian Scientists and their kind or will lose votes for her among those who favor elevating the health of future generations.

A Christian Science lawyer, Henry Deutsch, is also a candidate and it is fair to assume that if elected he will follow the teachings of his church and oppose anything that will help hygiene and sanitation in their efforts to eradicate communicable diseases, and otherwise improve the health and efficiency of the children in schools.

"THE HOUSING PROBLEM"

Charity organizations and public spirited workers all over this United States, and I dare say, all over the world are raising a great hue and cry over the indecent and unsanitary housing of the poor, but what of the housing of the middle class? (In the condition of the *rich* I have no voice to raise, knowing nothing of it.) By the middle class I mean the business and professional men who by working hard and straining every point are able to house their families in a manner aping the *rich.* What is the result? The American husband, known over the entire world as over-indulgent, slaves in an office or store without proper recreation in order to keep his family in a home which to him seems fitting. The wife spends her time and energies in trying to teach ignorant employes to handle the modern conveniences with some degree of skill, and work things into shape so that the weary and overworked head of the house may find all smooth and calm when he dashes in late for dinner and remains long enough to read the evening paper. Let us try to see the woman's side. The sanitary house must have large, airy rooms, with many windows. This necessitates the screening, storm-windowing, curtaining and washing of these windows. With present labor conditions that is much. Not only a great expense but a great labor to see that it is done. Modern houses have much plumbing, many porcelain tubs, hoppers and basins. Each of these must be cleansed each day and the mistress must see that it is done. The servants are supplied with a bath room of their own. If that is kept clean and sanitary it is at the point of a bayonet. Said bayonet used by the mistress with considerable strain on her nervous system. The one or two maids employed in such a household, although demanding and receiving large wages (more than the machine can well afford) smash dishes, wrench faucets out of order, put harmful things in the water pipes to cause trouble, scratch furniture, etc. That means telephoning for repair men. After several messages they come. When they depart the thing they came to repair is in order, but something else has been damaged. More telephoning, more men, and at the end of the month more bills. Agents appear at the door to show new cooking utensils, various brushes for removing dirt, or a perfect vacuum cleaner. The harassed housewife says to herself surely these things will help along. The cook breaks the utensils,; the maid loses the brushes and the vacuum cleaner goes for a time, then refuses to work. The agent who promised to keep it in repair if you would buy it, now is busy working other innocents to buy, and delays days in coming to your assistance. Add to this house grounds, porches, walks and furnace requiring the employment of a man who, being an independent American citizen, works when he likes. Possibly you can begin to see something of what the day has been for the woman. At its end she looks across the table at the drawn care-worn face of a man who is overworked and likely to break down in early life, and she says in the bitterness of her heart "What's the use?" "Life is surely one damned thing after another." Medical men see every day women broken down by this domestic worry; they also see many men who have reached the breaking point. Do they ever consider anything in the way of a real remedy? There must be a cause. Can anyone find it? Why must we have all these household cares and expenses in order to be comfortable? Is there no way between that and a hotel when there is no home life? From the woman's point of view none of these cares or worries would be too much if it gave her the companionship of the man she has chosen, but if he gives any *time* to the home there will be no *money* to pay the bills required by that home. Is there no way to go halves? Fewer expenses, a little less work and some chance to live in the home. Let the much praised American husband consider this question and see whether a lessening of physical and mental breakdowns for both men and women might be the result.

The answer to this editorial is whether to give your wife a trip or buy her a limousine or both. —(Editor).

REPORTS OF SOCIETIES

ACADEMY OF MEDICINE

The Academy of Medicine held its annual meeting at the Town and Country Club Wednesday evening, October 2nd, 1912.

The election of officers resulted as follows:

President—Dr. L. A. Nippert of Minneapolis.

Vice-President—Dr. A. Schwyzer of St. Paul.

Secretary-Treasurer—Dr. A. W. Dunning of St. Paul.

Members of the Executive Committee:

Dr. C. M. Carlaw, Minneapolis.

Dr. H. B. Sweetzer, Minneapolis.

Dr. W. A. Dennis, St. Paul.

The paper of the evening was read by Dr. A. Schwyzer entitled, "Conservative Surgery in Suppurating Kidney Cases."

DISCUSSION

Dr. J. E. Moore commended the writer, and referring to the longevity of persons in whom one kidney has been destroyed or removed, cited a case in whch he removed one kidney 25 years ago. Four years later he operated for appendicitis, and the man is living now though old and somewhat feeble.

As to the drainage of septic kidneys, he felt that it should be attempted only in carefully selected cases, and it must not be forgotten that the kidney may have to be removed afterward. *This latter procedure he has sometimes found* *to be very difficult indeed.*. Dr. A. W. Abbott stated that he has very great reverence for the kidney, and because of its importance it is often a very difficult matter to decide which course to pursue. He emphasized the fact that in congenitally misplaced kidney the organ must be removed, as in that case it is not safe to drain.

Dr. H. P. Ritchie referred to a case operated upon in March, 1904. A young woman who had had tonsilitis three weeks before developed trouble in one kidney. Cystoscopic examination, and segregation of the urine revealed pus in the one kidney, but not in the other. Upon operating, multiple abscesses, some 17 in number had been found. Drainage was established through a tube into the pelvis which was allowed to remain for 2½ months. The urine cleared up almost immediately, and her subsequent history has been good.

Dr. Litzenberg made the point that it is not necessarily a calamity for a woman who has had one kidney removed or destroyed to become pregnant. While it is, of course, undesirable, it is not by any means necessarily fatal. He then related the circumstance of a case in his experience in which one of these women had become pregnant and he had carried her through confinement without difficulty.

Dr. Gilfillan considers cases of septic nephritis interesting because of late we are coming to know more about them. He emphasized that if allowed to run on one septic kidney is apt to give rise to foci of infection in the opposite one.

Dr. Dennis related the case of a young woman upon whom he had operated years ago. She had been much better for a time, but became anemic, (the urine was reduced to 8 or 10 ounces daily), and she did not thrive. Later on he had been induced against his own judgment to explore the opposite kidney, had found nothing wrong with that organ, but found what seemed to be an obstruction to the ureter by a blood vessel binding upon it. This was released, and the patient again seemed much better for a time, but recently has become anemic again. She gets more relief from dry cupping than from anything else. He is inclined to regret that he had not decapsulated the kidney when making the second operation.

Dr. Schwyzer said, in closing, that he agreed with Dr. Moore that drainage should certainly be done only after carefully studying the case.

A. W. Dunning, Secretary.

GOODHUE COUNTY SOCIETY

This Society held its regular meeting at Red Wing on October 1st and a goodly number of physicians were present from the various towns. Papers were presented by Dr. Charles Lyman Greene, of St. Paul, the subject being, "Diseases of the Heart," while Dr. W. L. Craddock of Pine Island, read one on "Infantile Paralysis."

Other matters of great interest were brought up and discussed after which dinner was served.

M. W. Smith, M. D., Secretary.

HENNEPIN COUNTY SOCIETY

The Society held its regular meeting on September 9th with about fifty members present and Dr. C. H. Bradley, President, presiding. Application for membership was received from Dr. Earl R. Dezell and Dr. Albert E. Johnson.

Several reports from different committees were received and acted upon.

A very instructive paper was read by Dr. A. C. Rogers, of Faribault, on "Field Work for Defectives." The Society extending a rising vote of thanks to Dr. Rogers for his visit to the city and delivering the lecture.

Dr. H. W. Jones, Minneapolis, read a paper entitled, "Some Surgical Aspects of Defective Children." A discussion of the paper by several members took place, after which the meeting adjourned.

E. J. Huenekins, M. D., Secretary.

THE MINNESOTA PATHOLOGICAL SOCIETY

The annual meeting of the above Society was held in the Pathology Building at the State University on Tuesday evening, October 15th, when the annual address was made by Dr. Ludwg Heltoen, Director of Memorial Institute for Infectious Diseases, his subject being, "Recent Observations on Streptococi and Setreptococcal Infection." A good-sized audience was present.

NICOLLET AND LE SUEUR SOCIETIES

The regular meeting of these County Societies was held on September 24th at St. Peter, when the principal paper was read by Dr. A. F. Dodge of Le Sueur, entitled, "Idiosyncrasy and Anaphylasis."

A committee was named to take charge of arranging the program for the next meeting, which will be held early in January, 1913.

J. E. Le Clerc, M. D., Secretary.

NEWS ITEMS

Dr. Chas. R. Drake, formerly practicing in Minneapolis, has moved to St. Paul.

Dr. C. G. Hoff has moved from Wanamingo to Zumbrota where he will continue to practice.

Dr. H. P. Thornby, of Barnesville, was married this month to Miss Jessie Janet Louden, of that city.

Dr. E. Barrington Kendrick, of Sioux Falls, S. D., died in that city during this month, after a long illness.

Dr. G. F. Schmidt, who has been practicing medicine for many years at Duluth, has removed to Minneapolis.

A new hospital has been opened at Virginia with Dr. E. H. McIntyre, formerly of Chicago, as medical director.

A new hospital which will cost about $150,000 when built and furnished, is now being erected at Yankton, S. D.

Dr. W. B. Linton, of Minneapolis, has entered upon his duties as a member of the State Hospital Staff at Rochester.

Dr. J. E. Lee, a Minneapolis eye specialist, was recently arrested and fined $25, for illegal practice at Lemmon, S. D.

Dr. R. L. Laney has taken a position on the staff of the Virginia Hospital. He formerly practised in Minneapolis.

Minneapolis will issue $250,000 in bonds for a hospital for the detention of patients afflicted with contagious diseases.

Dr. J. S. Stewart, Viborg, S. D., has moved his office to Spearfish, S. D., a town of several hundred more population.

Dr. T. L. Birnberg, of Breckenridge, has sold out his practice and gone to Europe where he is to take a post-graduate course.

The Minneapolis Board of Education has been allowed $18,500 for medical inspection in the public schools for the year 1913.

Dr. and Mrs. D. H. Bell, of Kenmare, N. D., have returned from several months vacation through the New England states.

Five hundred and sixty-one patients were treated at the St. Paul Free Medical Dispensary during the month of September.

Dr. H. N. Blegen, formerly located in Minneapolis, has moved to Wahpeton, N. D., where he has opened offices for general practice.

Dr. A. J. Kirghis, who has practiced at Sauk Center during the past ten years, has moved to St. Cloud, where he will continue his work.

Dr. I. T. Burnside, of West Duluth, is a defendent in a $7,500 lawsuit for the accidental killing of a ten year old boy, by his automobile.

Dr. Wm. T. Edmonds has opened an office for general practice at Wood, S. D., no other physician being located nearer than eighteen miles.

Dr. E. J. Hagan, of Williston, N. D., is recovering from a serious attack of blood poisoning, caused from an operation in a case of gangrene.

Dr. A. D. McConnel, of Minot, N. D., has been spending his vacation by an extended trip to the Pacific coast, returning through the Manitoba wheat regions.

Dr. George H. Simmons, the executive officer of the American Medical Association will visit Minneapolis this month to arrange details for the next meeting which is to be held in this city during 1913.

Dr. E. A. Eberlin and Dr. J. R. Elsey have established a new hospital at Glenwood. The citizens of that city gave them a surprise at the opening of the hospital, by presenting them with a good supply of silver, china, linen, furniture, etc.

Dr. Wilhelm His, privy councillor of the German emperor and professor in the University of Berlin, and Dr. Jacques Bertillon, brother of Alphonso Bertillon, inventor of the criminal identification system bearing his name, spent several days at Rochester as the guests of the Drs. Mayo.

Forty-four of the most skilled men engaged in the practice of surgery in Germany, were entertained last month at Rochester by Drs. Wm. J. and C. H. Mayo. The visitors are members of societies that represent the leading clinics of Germany, and come from such centers as Berlin, Vienna and Prague. They came over to America in a body to attend the sessions of the Congress of Hygiene and Demography at Washington, D. C., and to attend clinics in five other cities in the United States.

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF MINNESOTA FOR THE MONTH OF JULY, 1912

REPORTED FROM 82 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	0															
Albert Lea	4,500	6,192	4															
Alexandria	2,681	3,001	1		1													
Anoka	3.769	3,972	4											1				
Austin	5.474	6,960	4															
Barnesville	1,326	1,353	0															
Bemidji	2.183	5,099	6	1										1		1		1
Benson	1,525	1,677	1													1		
Blue Earth	2,900	2,319	3															
Brainerd	7.524	8,526	4			1					1							1
Breckenridge	1,282	1,840	1															
Canby	1,100	1.528	0															
Cannon Falls	1,239	1,385	2															
Chaska	2,165	2,050	*															
Chatfield	1,426	1,226	1															
Cloquet	3,074	7.031	3	1														1
Crookston	5,359	7,559	6															1
Dawson	962	1,318	1															
Detroit	2,060	2,807	2		1											1		
Duluth	52,968	78,466	66	10		1					1				2	3		7
East Grand Forks	2.077	2,533	0															
Ely	3,572	3,572	3	1												1		1
Eveleth	2,752	7,036	5													1		
Fairmont	3,440	2,958	1	1														
Faribault	7,868	9.001	6	1	1											1	1	
Fergus Falls	6,072	6,887	3												1			
Glencoe	1,788	1,788	1															
Granite Falls	1,454	1,454	1															
Hastings	3,811	3,983	6	1												1		1
Hutchinson	2.495	2,368	0															
International Falls		1,487	5												1	1		2
Jordan	1,270	1.151	2															
Lake City	3,142	3,142	3		1											1		
Le Sueur	1,937	1,755	1															
Little Falls	5.774	6,078	4															1
Luverne	2,223	2,540	3															1
Madison	1,336	1,811	1															
Mankato	10,559	10.365	13	2		3									1	1		2
Marshall	2,088	2,152	1															
Melrose	2,591	2.591	3															
Minneapolis	202,718	301.408	249	34	5	7	3		2					1	15	22		23
Montevideo	2,146	3,056	2															1
Montgomery	979	1,267	0															
Moorhead	3,730	4,840	5												1			1
Morris	1,934	1,685	2														1	
New Prague	1,228	1,554	1															
New Ulm	5,403	5,648	3													1		
Northfield	3,210	3.215	0															
Ortonville	1,247	1,774	6		3									1				1
Owatonna	5.561	5,658	4			1										1		
Pipestone	2.536	2.475	1															
Red Lake Falls	1.666	1,666	1	1														
Red Wing	7,525	9.048	14		1										1	1		
Redwood Falls	1.661	1.666	1	1														
Renville	1,075	1,182	0															
Rochester	6.843	7.844	24	1							1				1	7		
Rushford	1,100	1,011	0															
St. Charles	1,304	1.159	1															
St. Cloud	8.663	10,600	12	1	1										4	1		
St. James	2.102	2,102	0															
St. Paul	163,632	214,744	155	16	3	6								1	7	12		12
St. Peter	4.302	4,176	3															
Sauk Centre	2,154	2,154	4	1				1										
Shakopee	2.046	2.302	2													1		
Sleepy Eye	2,046	2.247	1															
South St. Paul	2,322	4.510	2	1											1			
Staples	1,504	2.558	0															
Stillwater	12.318	10.198	10	1		1												1
Thief River Falls	1,819	3,174	2	1														
Tower	1,111	1,111	*															
Tracy	1,911	1,826	0															
Two Harbors	3,278	4.990	9	1		1												1
Virginia	2.962	10,473	14								2	1			2			4
Wabasha	2,622	2,622	2	1														
Warren	1.276	1,613	3															
Waseca	3.103	3.054	2	1														
Waterville	1,260	1,273	1															
West St. Paul	1,830	2,660	1															
Willmar	3,409	4,135	1															
Winona	19,714	18,583	17												1	1		4
Winthrop	813	1,043	0															
Worthington	2,386	2,385	1															

REPORTED FROM 54 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	0	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Aitkin	1,719	1,638	*	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Akeley			0	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Appleton	1,184	1,221	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Belle Plaine	1,121	1,204	0	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Biwabik		1,690	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Bovey		1,377	1	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Browns Valley	721	1,058	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Buffalo	1,040	1,227	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Caledonia	1,175	1,372	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Cass Lake	546	2,011	*	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Chisholm		7,684	2	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....
Coleraine		1,613	0	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Delano	967	1,031	3	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Farmington	733	1,024	0	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Fosston	864	1,055	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Frazee	1,000	1,645	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Glenwood	1,116	2,161	2	....	....	....	....	....	....	....	....	....	....	....	1	....	....	1
Grand Rapids	1,428	2,239	*	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Hibbing	2,481	8,832	10	1	....	1	....	....	....	....	....	....	....	....	2	....	....	1
Jackson	1,756	1,907	4	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....
Janesville	1,254	1,173	0	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Kenyon	1,202	1,237	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1
Lake Crystal	1,215	1,038	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Litchfield	2,280	2,333	3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Long Prairie	1,385	1,250	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Madelia	1,272	1,273	1	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....
Milaca	1,204	1,102	0	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Mountain Lake	959	1,081	0	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Nashwauk		2,080	3	....	....	1	....	....	....	....	....	....	....	....	1	....	....	1
North Mankato	939	1,279	0	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
North St. Paul	1,110	1,404	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Osakis	917	1,013	0	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Park Rapids	1,313	1,850	2	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....
Pelican Rapids	1,033	1,019	0	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Perham	1,182	1,376	4	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Pine City	993	1,258	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1
Plainview	1,038	1,175	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Preston	1,278	1,193	0	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Princeton	1,319	1,555	4	....	1	....	....	....	....	....	....	....	....	1	....	....	....	....
St. Louis Park	1,325	1,743	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Sandstone	1,189	1,818	*	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Sauk Rapids	1,391	1,745	1	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....
South Stillwater	1,422	1,343	0	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Springfield	1,511	1,482	1	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....
Spring Valley	1,770	1,817	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Wadena	1,520	1,820	2	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Wells	2,017	1,755	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
West Minneapolis	2,250	3,022	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Wheaton	1,132	1,300	0	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
White Bear Lake	1,288	1,505	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Windom	1,944	1,749	3	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Winnebago City	1,816	2,555	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Zumbrota	1,119	1,138	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
STATE INSTITUTIONS																		
Anoka, Asylum			0	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Faribault, School for Blind			0	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Faribault, School for Deaf			0	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Faribault, School for Feeble Minded			7	6	....	....	....	....	....	....	....	....	....	....	....	1	....	....
Fergus Falls, Hospital for Insane			20	5	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Hastings, Asylum			4	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Minneapolis, Soldiers' Home			4	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....
Owatonna, School for Dependents			0	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Red Wing, State Training School			0	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Rochester, Hospital for Insane			17	3	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Sauk Centre, Home School for Girls			0	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
St. Peter, Hospital for Insane			8	1	1	1	....	....	....	....	....	....	....	....	....	1	....	....
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OTHER PARTS OF STATE			606	57	6	23	10	2			10	2		7	22	35	2	70
Total for state			1465	158	27	50	14	3	2	0	17	3	0	13	68	100	4	142

*No report received. **Registrar not doing his duty.**

114 stillbirths not included in above totals.

The Doctor

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In all but the most equable of climates, a very large proportion of the population suffers more or less from coughs and colds during the winter months. Many individuals who, at other times, are apparently in excellent health, contract a cold almost as soon as the cold weather commences, and are scarcely convalescent before another attack occurs, until a sub-acute or more or less chronic naso-pharyngeal catarrh is established which is not thrown off until the spring opens. The frequency of such respiratory affections during the winter months is no doubt mainly due to surface chilling from frequent exposure to changes of temperature and the general lack of adequate ventilation of artificially heated houses, stores, offices and schools. Insufficient oxygenation, the longer "housing up" of the individual and the indisposition to open air exercise in cold weather undoubtedly serve to reduce the general vitality and the respiratory mucous membrane becomes less resistant and more readily subject to infective and catarrhal influences. When (as is usually the case) the patient cannot correct the unhygienic conditions referred to, it is the part of wisdom to tone up the general vitality of the patient and thus render his respiratory tract more resistant to morbific influences. This can best be accomplished by prescribing Pepto-Mangan (Gude) as soon as the more acute symptoms have disappeared. A thorough course of treatment with this efficient blood builder and general tonic reconstructive very frequently places the patient in a position to successfully ward off further catarrhal attacks.

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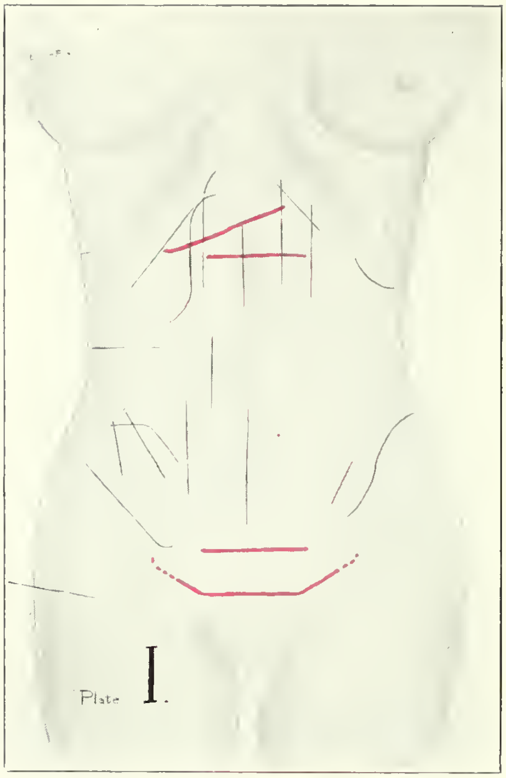
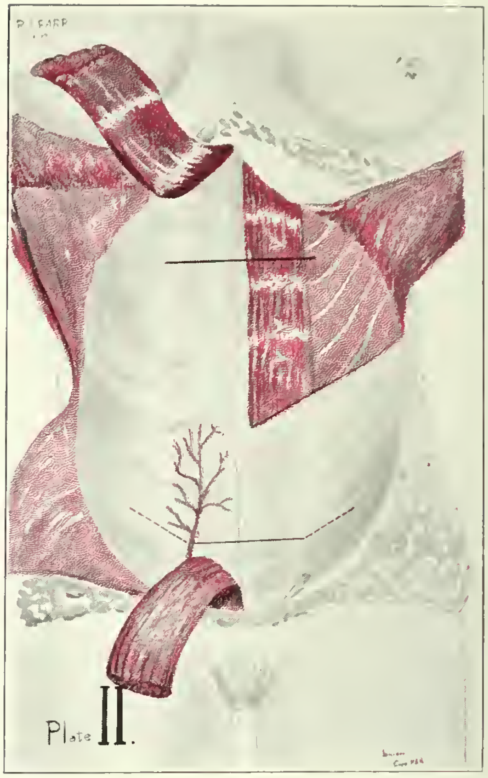


Plate I.



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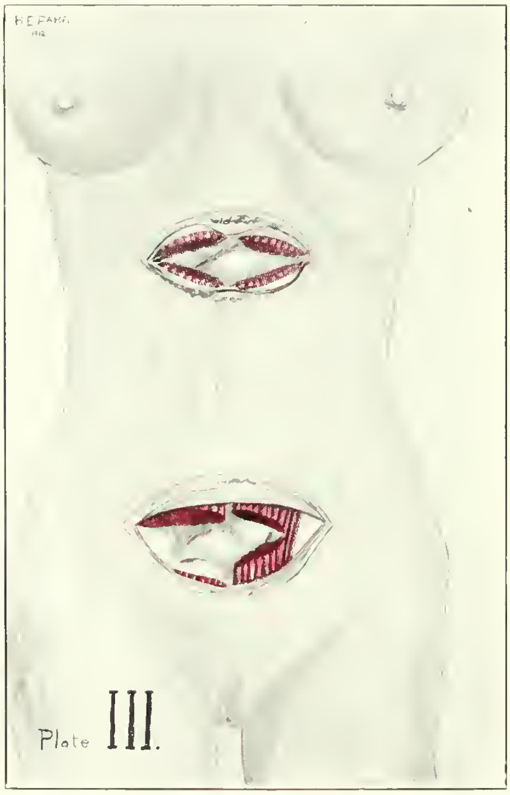

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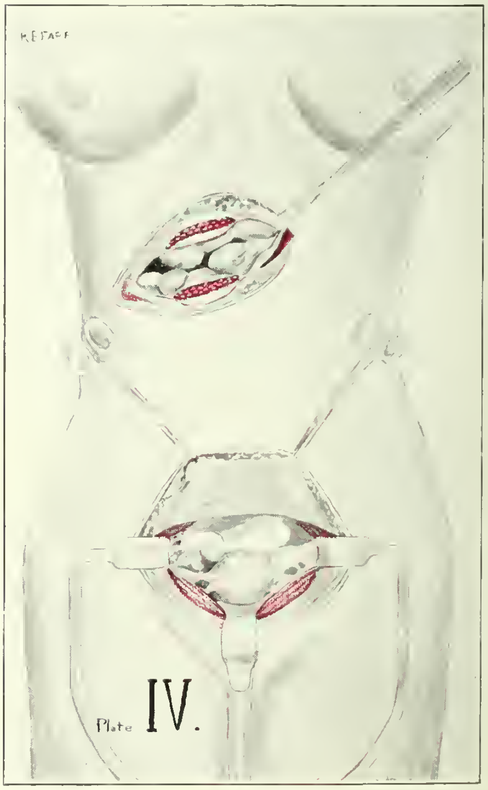
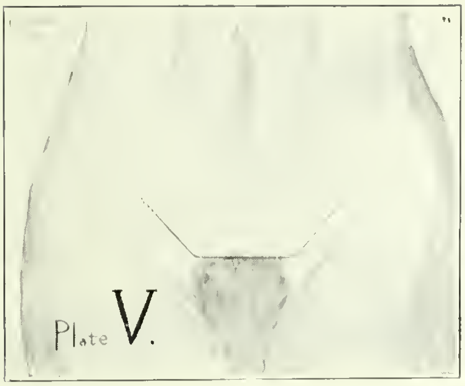


Plate IV.

PLATES ILLUSTRATING DR. R.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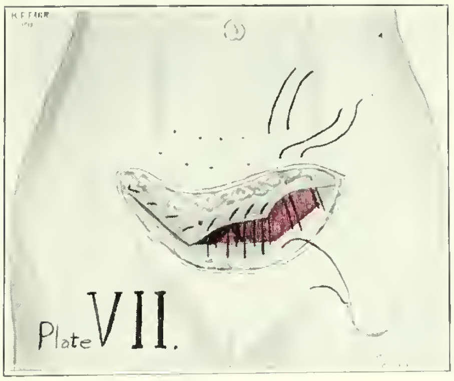
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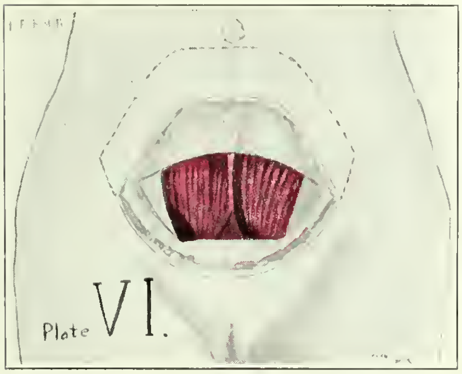
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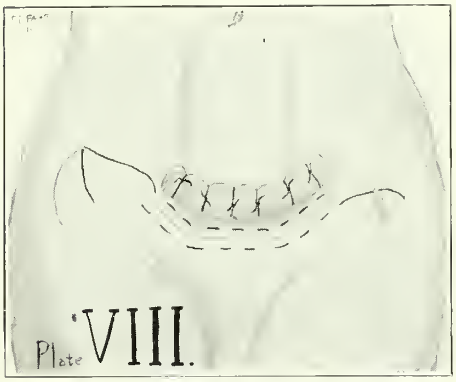
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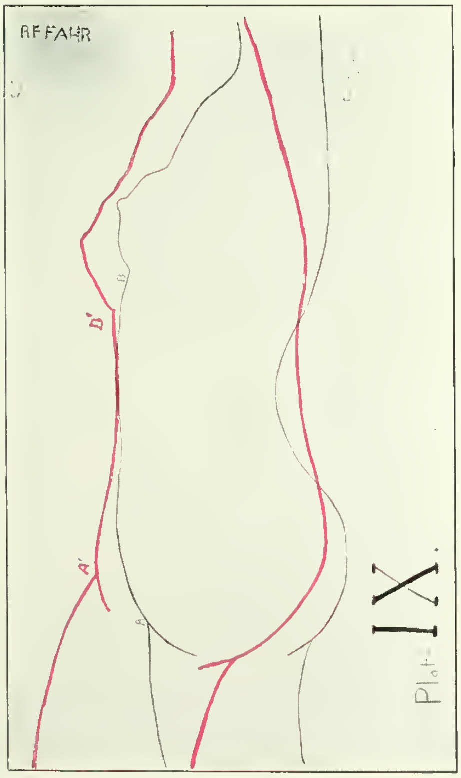

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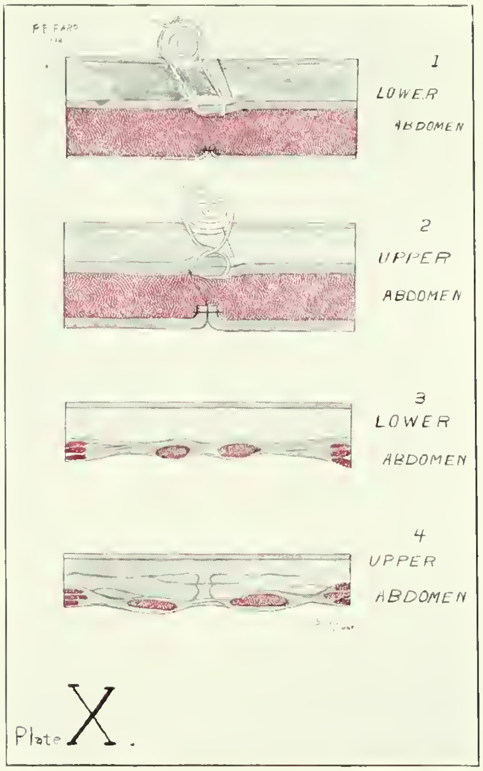

Plate X.

TLE ON ABDOMINAL INCISIONS

THE

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and Official Organ of the

South Dakota State Medical Association

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ABDOMINAL INCISIONS*

By R. E. Farr, M. D.

MINNEAPOLIS

In going over the literature of this subject one at once realizes that surgeons are much more concerned with methods of closing abdominal incisions than with the technic of making them. The number of incisions, however, already described for entering the abdominal cavity is very great. (Plate I.) All portions of the abdominal wall have been attacked by incisions, either straight, curved, or angular, and running in every direction. This in itself is conclusive evidence that the best and most serviceable incisions for opening the abdomen have not been agreed upon. It may also indicate, to some extent, the difficulties met with in gaining access to the various fields of operation and perhaps also some dissatisfaction with the post-operative results. It may possibly also be an evidence of the tenacity with which we cling to certain customs which have been practiced so universally heretofore.

Incisions may conveniently be divided into *vertical*, *oblique*, and *transverse*.

In the vertical the rectus muscle may be displaced laterally, split longitudinally, or left unmolested by an incision along either edge. In the oblique either the rectus muscle or the aponeurosis, or both, may be divided obliquely. The best known examples of oblique incisions are the procedures of Kocher and Bevan for exploration of the gall-bladder. (Plate I.) In the transverse incision the aponeurosis is divided in a direction transverse to the long axis of the body, and the rectus muscles are either displaced laterally (Plate IV.) or cut transversely to a greater or less extent or even completely. (Plate III.)

The vertical method is, without doubt, by far the most popular one, both in this country and abroad, and its almost universal adoption may be taken as an evidence of the respect which surgeons, the world over, have for the rectus muscle.

I wish briefly to refer to some anatomical points which are of interest in this connection, and I hope that I may be pardoned for referring to a subject which, though old, is, nevertheless, new to most of us every time that we hear it rehearsed.

There are four pairs of important abdominal muscles, three lateral and one anterior. The lateral muscles are fleshy at the sides, but end anteriorly in aponeuroses which run in a transverse general direction. (Plate II.) These muscles are distinct and separate from each other before they reach the semilunar lines, where they become inseparable; and below the semilunar fold of Douglas they run, in most cases, entirely in front of the recti. (Plate X-3.) Above this point, which is about midway between the umbilicus and symphysis, the transversalis and a portion of the internal oblique pass behind the recti. (Plate X-4.) They all unite in a central tendinous line, the linea alba.

The recti really have no sheath of their own. Each rectus muscle is divided into three parts, and often four or even five, by tendinous intersections, which really convert it into a series of short muscles instead of one long single muscle. (Plate II.)

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*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

When we study the nerve supply of the abdominal wall (Plate II.) we find that the general direction of the nerves is from behind forward and downward until the semilunar lines are reached. From this region inward the direction is nearly transverse, except at the extremities of the rectus muscle. In the upper abdomen the course of the nerves is upward and inward, while in the lower abdomen their course is downward and inward, but all nerves enter the rectus at right angles to the long axis of the body.

The blood-vessels of the anterior abdominal wall run in a direction parallel to the long axis of the body. (Plate II.) The linea alba is practically avascular and without lymph supply. The same may be said of the aponeuroses, but these are supplied by vessels from the fat upon the one side and from the muscles upon the other.

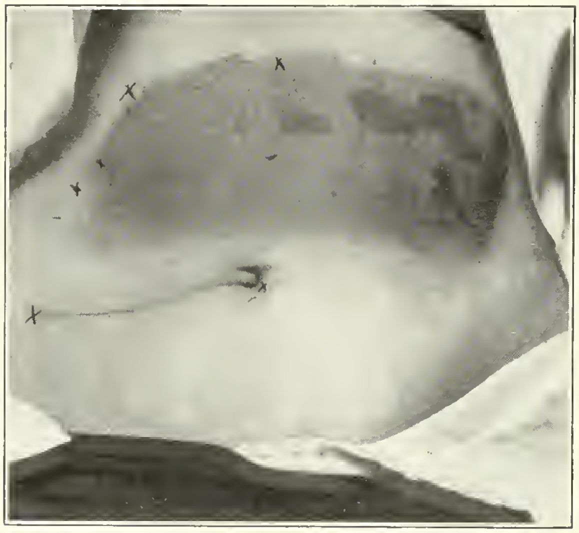

Fig. 1.

Mrs S. — Cholecystostomy-appendectomy-umbilical herniotomy. Photo one year after section of right rectus at upper end and at level of Umbilicus. Cholecystostomy with drainage thru stab wound. Umbilical Hernia with adherent appendix necessitating elongation of incision to right. Scars almost imperceptible.

In operations of choice in abdominal work, one of the most important features is the avoidance of a subsequent hernia, which, in many cases, would be much more serious to the individual than the condition for which the operation was done. Other considerations,—such as the comfort of the patient and the cosmetic result,—must also enter prominently into the consideration of a proposed laparotomy, at least one of choice. In this class of cases it is therefore essential to enter the abdomen by some route which will give, in the first place, the greatest security against post-operative hernia, and, secondly, the greatest amount of comfort, both from the standpoint of pain and of cosmetic results.

With regard to incisional hernia: It may be said that statistics are very difficult to collect, for the reason that many of the individuals who develop hernia do not return to the surgeon whom they consider responsible for the condition, for obvious reasons. Undoubtedly, we have more post-operative hernias than we are aware of. In these days when many operations are performed upon individuals who might get along fairly well without an operation at all, simply because operations are now so safe and comparatively free from danger, the consideration of post-operative hernia and the matter of cosmetic results assume relatively greater importance than they would in a class of cases where the operations are absolutely necessary and life-saving in character.

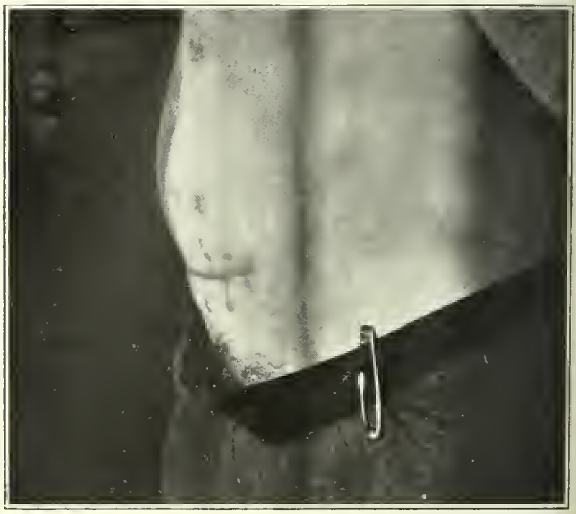

Fig. 2.

Miss H.—Case of Pelvis Suppuration—Double Salpingectomy-Rt. Oophrectomy-Resect. L. Ovary-Appendectomy-Susp. Uterus. Both recti cut across-drainage thru stab wound. Note retraction of scar rather than bulging following secondary healing. Photo 6 mos. after operation.

Coryllos[1] states that post-operative hernia is not the fault of the patient, but of the operator. This is true, at least, to a certain exent. It was with the hope that I might enhance the value of my surgical work that I began, in December, 1910, to do an occasional transverse abdominal incision for the purpose of trying out the method, as I had been somewhat impressed with the claims made by the advocates of this procedure, although I considered these claims somewhat extravagant. I at once recognized the ready access which it gave to the abdominal cavity; and since that time I have made a rather careful canvass of the literature upon the subject and have cautiously tested this incision in a variety of conditions, in order to determine, if possible, the degree of merit, if any, which it possesses over the other methods now in use.

The method is used by a comparatively small number of surgeons, and its introduction is of such relatively recent occurrence that a perusal of the literature will not permit one to draw very positive conclusions or to make many very definite claims concerning it.

There are three distinct procedures under the name of the transverse incision:

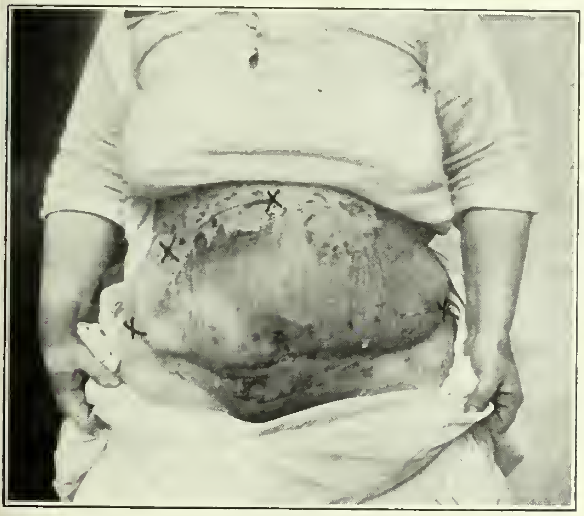

Fig. 3.

Mrs. Aug. A.—Cholecystostomy-Appendectomy and Resect. L. Ovary. Excision of fat. Rt. Rect. cut across in upper abdomen. Both Recti cut partially across in lower abdomen. Note short distance from Umbilicus to Symphasis caused by excision of fat.

1. In 1896 Küstner[2] recommended a transverse incision down to the aponeurosis for cosmetic reasons only. Rapan[3] reported using the same incision at the same meeting and for the same reason.
2. Bardenhauer[4] used what he called the "incision arciforme," which extended from one iliac spine to the other.
3. Pfannenstiehl[5], in 1900, recommended a transverse incision down to the rectus muscles, which were than separated in the midline. (Plate VI.)

The advantages of the Küstner-Rapan method are not apparent, and the results following the procedure of Bardenhauer were poor on account of the frequency of hernia, although a splendid exposure could be had. We shall dismiss these methods and discuss only the Pfannenstiehl method and its modifications.

When Pfannenstiehl introduced this incision he limited its use to the simpler pelvic cases, but many modifications have followed, the most radical having to do with the division, transversely, of the rectus muscle. (Plate III.)

I have searched diligently for information upon this point, which I believe to be the key to the whole situation. If the cutting of the rectus transversely is a safe and sane procedure we should at once forsake the vertical incision and use the transverse in practically all of our intraperitoneal work.

I am absolutely convinced that a better exposure can be obtained through the same length of incision by the transverse incision, where the rectus is cut, than by the longitudinal. As already stated, the most difficult point to decide, is regarding the transverse division of this muscle.

As simple opinions, unless fortified by carefully compiled statistics, are not especially convincing, I have made an effort to learn something concerning the general sentiment and impression which surgeons have regarding these incisions, as well as the actual results following their use.

In this connection it seems only fair to give credence to the opinions of those whose experience is greatest with the method, and we must also bear in mind that most of those who are now using these incisions have used the vertical incisions also very extensively, both before and during the time in which they have been practicing the transverse. And it is worthy of note that we find, almost without exception, that those who have practiced the transverse have become converted to the method for the handling, at least, of certain classes of cases.

It is apparent that the method is more popular in Germany than in any other country and is probably used to less extent by the most talented surgeons in our country than by the same class abroad. According to Coryllos it is gaining ground in France.

The opinion of surgeons who favor the *vertical* incision is so well known that it needs little comment. It is well voiced by such representative men as J. C. Munro[6], Wm. M. Mastin[7], the Mayos[8], and G. B. A. Moynihan[9], who state that the abdomen should be opened vertically by splitting the muscles or displacing them, but that the muscles should *not* be divided transversely under any circumstances.

I have, as I say, paid especial attention to the question of division of the rectus while gleaning the opinions of different surgeons upon the general subject of abdominal incisions. I think it will be of interest to quote some of these opinions.

Sprengel[10] (1910) and Coryllos[1] (1911) have given excellent reviews of the literature upon the subject, as well as reporting their personal experiences. They both agree that the method is increasing in popularity and that the circle of indications for its use is constantly enlarging.

Mickulicz[11] and Kausch[12] (1900) say that altogether, perhaps unjustly, the method is seldom used.

Mickulicz[11] saw his instructor, Bilroth, do transverse incision of the rectus in a stomach operation with careful union and a good scar as strong as any other.

Martin[13] says that a transverse seam through a muscle does not weaken it.

Crile[14] divides the muscles of the neck transversely to any extent in goiter or other operations and sutures them at once and says that he always has perfect results. This I know from experience to be true.

Murphy[15] quotes Mickulicz as saying that transverse division of a muscle does no harm, and he says that he agrees perfectly.

Körte[16], Bergmann[17], Schlange[18], Bier[19], Lanz[20], and Haidenhain[21] say that transverse division of the rectus gives good results and that for no small reason should it be substituted.

In 1909, at the Allgemein Congress, most of those present expressed themselves in favor of the vertical and against the transverse incision after the opening address of Menge favoring the method.

Bionde[22] (1895) recommended transverse incision in umbilical hernia across the rectus sheath, but probably did not use it.

Brotz[23] (1900) called attention to the fact that union is easier in umbilical hernia in a transverse direction.

Mayo[24] (1901) made use of these ideas in the transverse overlapping operation, which is now universally accepted.

Diaknow[25] and Starkow[26] found that ruptures occur, not through longitudinal, but through transverse, tears and advised a square flap to cover the opening.

Moskowicz[27], Payr[28], and Steinthal[29] favor the transverse incision and say that it gives a good view.

Opinions among men who have used it seem to be divided regarding cases of pelvic suppuration and in large tumors, but Pfannenstiehl[5], Döderlein[30], Schauta[31], Vertes[32], and Köenig[33] contend that the general cavity can be better protected and cite statistics to prove that it gives a lower mortality.

Bumm[34] says whoever uses it once in Cæsarean section will not use any other.

Already (1910) 437 Cæsarean sections have been done by this method.

Strassmann[35], Emil Krauz[36], R. Van de Velde[37], Menge[38], Th. Dolbert[39], Ziolkowsky[40], and Hessel[41], combined, published 497 cases without post-operative hernia.

Pfannenstiehl, who introduced the method in 1900, reports about 50 per cent of his cases operated upon by the transverse incision. From 1901 to 1905 his ratio changed to about 80 per cent transverse, while since that time until his death over 90 per cent were done by the transverse method. He states that it may be compared to the vaginal method in its benignity because there is no trauma or handling of tissues. Pfannenstiehl, in 1907, stated that his investigations showed that 8 per cent of laparotomies through vertical incisions resulted in hernia after primary healing and 30 per cent after secondary healing. These figures seem very high, especially for the clean cases. In a careful analysis by Coryllos[1] of 2,855 cases by the transverse method there were but 7 post-operative hernias and not a single one following primary healing. This gives but 0.27 per cent of hernias in suppurative cases and none in clean cases.

Sprengel[10] states that only the methods which bring together aponeuroses in the direction of their fibers are correct, and he asks: "Who would think of uniting the aponeuroses in an operation for inguinal hernia end to end?" He thinks that the reason for the failure of the arciform incision of Bardenhauer[4] is from the severing of the nerves, and not from division of the muscles. He was astonished at the good exposure and easy closure, and he even extends the incision out past the edge of the rectus in work upon the gall-bladder on the right and upon the spleen on the left. He thinks that it is only a matter of time until everyone will use this method. A point which must hold one's attention and respect is brought out by this surgeon. He has carefully examined both the vertical and the transverse incisions at autopsy, and, whereas, it was a general occurrence to find one or more stitches cut out in the vertical closure, the oblique and transverse were always in perfect apposition. He does not state the number of cases that he has examined, but advises that it is sufficient from which to draw conclusions.

He finds that it is seldom necessary to cut more than one rectus in gall-bladder work and prefers carrying the incision outward along one of the muscular planes if more room is needed. He says that there is much less tension, but that closure is slower. The muscle retracts only between the lineæ transversæ. He states that there is more room and more convenience, and that the intestines are more easily kept out of the way. He gradually became a convert to the transverse incision and says that his experience, coupled with that of other surgeons, proves that it is safe to divide the rectus muscle transversely. He calls it the ideal incision in the surgery of the pancreas, although it has been used very little here, and that it is rapidly increasing in favor in the surgery of the pelvis. He calls attention to the fact that the after-comfort is greater, as there is less pain and retching, and that when the patient does strain there is less tension on the wound, as traction tends to coapt rather than to separate the margins of the wound. In one case Sprengel made both a vertical and a transverse incision together, and a hernia followed the vertical while the transverse held firmly. As stated, he has no objection to cutting the rectus, and he thinks that there is a lack of knowledge of the action and importance of the abdominal muscles and aponeuroses.

Heusner[42], in 1906, recommends the division of one muscle or both if necessary. He says that we should save the nerves by all means and to make the incision through the part of the abdominal wall, which is thickest, or has the thickest layers, and he calls attention to the fact that there is practically only one layer at either edge of the rectus. He also calls attention to the well-known fact that cut muscles heal easily and functionate perfectly as long as the nerve-supply is intact, and he says that the direction in which the muscle is cut need cause no concern as long as the nerves supplying it are conserved. He inquires: "Of what use is it in a gall-bladder operation, for instance, to separate bluntly the muscle fibers of the rectus and thereby destroy the nerves entering it?"

Heusner, after two years, although he did not state the number of cases operated upon, had no known case of hernia follow after transverse division of the muscles. He does not agree, however, that muscle is not necessary in preventing hernia, as claimed by some, and he cites the use of the internal oblique in the operation for inguinal hernia. He very carefully sutures the muscle and says that the pressure required to bring the cut ends of the muscle together by suture is no greater than that required for the lateral suture of muscle, and that the results are no worse.

Lennander[43] is especially concerned with conserving the nerves and says that the transverse incision is not followed by hernia, even though drained. After pararectal incisions he recommends the immediate suture of the cut nerves. He also says that in vertical incisions the peritoneal layer is often so tense that the stitches frequently tear out, and he advises sewing a piece of the omentum or even the round ligament of the liver in the incision to avoid tension, whereas, in the transverse there is no tension, and that straining tends to close rather than to open the wound. He states that above the navel transverse and oblique cuts are the best when drainage is needed, and that no hernia results if the aponeurosis is perfectly closed.

Anyone using it for Cæsarean section will not use the classical method again, according to Bier[44]. The procedure, he says, is becoming more generalized, and the esthetic qualities are not the only good qualities.

Maylard[45] calls attention to the fact that it is impossible to get union in a wound when there is too much tension, which is often the case in the vertical incision. He is very enthusiastic over the transverse and recommends it unhesitatingly for every kind of abdominal work. He does not hesitate to divide the muscle transversely and argues that it does not weaken the abdominal wall. He was able to follow sixteen of his cases and found four weak scars among them, which is a very high percentage though he explains that three of them were drained and that the fourth did heavy lifting soon after the operation. This is by long odds the most unfavorable report I have found upon the after-results.

Schauta[31], a former ardent advocate of the vaginal route, now considers that the Pfannenstiehl operation has all of its advantages and none of its disadvantages. In a report to the Gynecological Society of Vienna, he mentions 140 cases and says it is the method of choice in tumors, etc., below the navel. He gives pelvic suppurations as one of the contra-indications. Polleson[46] gives the same indications and also says that the dead spaces are obliterated by intra-abdominal pressure.

Hartmann[47] states that the Pfannenstiehl method is reacting against the vaginal route, which has been so popular in Germany, and that it allows more complete and thorough work. He would limit the procedure to the more simple pelvic work, and does not divide the muscles.

Kocher[48], besides stating that the rectus is the least important of the abdominal wall structures, has used the method extensively in gall-bladder work. His oblique division of the rectus high up is too well known to need comment here. It would seem that this is a most vital test because drainage is so frequently used in this class of cases. If a man of Kocher's experience and judgment has had results which satisfy him, we must at least take notice. He prefers the vertical incision for bladder work only in septic cases, as the divided planes are then parallel. He says we have less to fear from division of the rectus muscle than from the division of any of the other important structures of the abdominal wall.

Heusner[42] and Winklemann[49] go transversely and displace the muscle above the navel, but they have few followers.

Winklemann[49] states that the transverse incision is very easy to suture. He loosens the rectus and retracts it. He states that he is astonished at the ease with which the wound comes together.

Vertes[50] recommends it strongly, especially for the performance of the Wertheim operation, and he has done all of his operations of this nature since 1903 through the transverse incision.

Newhouse[51] used it in conjunction with the Momberg tube in doing the radical operation for cancer of the uterus, and says that there can be no argument against it. Döderlein[52] is equally enthusiastic concerning it in this operation. He did every one of his last 50 cases of carcinoma of the uterus (the Wertheim operation) in this way. They both say that it gives the very best access to the field of operation.

Helsted[53], from the clinic of Leopold Mayer, Copenhagen, published 50 cases; Wagraftig[54], of Odessa, 57; and J. Hammelfarb[55], of Moscow, 70, without a post-operative hernia.

In this country Dr. Louis A. Stimson[56], of New York, was probably the first man to use the Pfannenstiehl method to any extent.

G. Davis[57], of Philadelphia, in 1906, recommended the transverse incision outside of the rectus for appendectomy.

Harrington[58], in 1899, and Wier[59], in 1900, suggested continuing the separation of the internal oblique and transversalis and retracting the rectus.

E. E. Montgomery[60] prefers the transverse method to any other for the round-ligament operations upon the uterus.

Boeckmann[61] and Hesselgrave[62], of St. Paul, during the last two years have recommended the division of both recti without reserve. Boeckmann has used it several hundred times since 1907 and claims that his scars are perfect.

Very recently Geo. M. Roberts[63], of New York, has once more warmly recommended the incision without division of the muscles for pelvic work.

I have done cholecystostomy, cholecystectomy, choledochotomy, pylorectomy, gastrotomy, partial gastrectomy, and appendectomy through the upper abdominal incision and have cut the right rectus completely across more than twenty-five times. I have seen some of these scars eighteen months after operation, and they have the appearance of an almost imperceptible line with absolutely no tendency toward hernia. Through the lower incision I have removed fibroids which extended well above the navel. I have excised the rectum and done the complete operation for cancer of the uterus, as well as most of the other operations that one finds necessary in the lower abdomen. I have purposely alternated between the transverse and the vertical incision so as to be in better position to compare them. The list of operations which I have performed will indicate very well the class of work which may be done even without division of the muscles. At first I divided the rectus in the lower abdomen in several cases. At present I am avoiding it wherever possible until sufficient time has elapsed to show the condition of the scars.

TECHNIC

In stomach cases the incision is carried through the inner edges of both recti and prolonged in either direction as required. (Plate III.)

In gall-bladder work I have generally begun by dividing the aponeurosis, retracting the right rectus until the preliminary examination is made with an estimate of the probable amount of room to be required. The right rectus is then usually cut across from within, outward and in a slightly downward direction. (Plate IV.) If more room is needed we may go across the left rectus or across the right similunar line.

Below the navel the Pfannenstiehl method is used and the muscle may be cut to a sufficient degree to allow plenty of room. (Plate III.) In enlarging the aponeurotic incision the layers are simply split upward and outward and the upper flap may in this way be raised to the navel. (Plates IV. & VI.) I would like also to call your attention to the matter of the removal of fat. In many of these pendulous abdomens the bulging is almost entirely due to a large amount of fat which assumes almost the characteristics of a lipoma or fatty tumor. Dr. Howard Kelley[64], Weinhold[65] and others have suggested excision of abdominal fat even in cases where the abdomen is not opened. I have made it a rule and find it very convenient to remove a wedge shaped piece of fat when opening the abdomen below the navel in fat women (Fig. 3.) Not the least important benefit derived from this excision of fat is the matter of gaining better access to the actual field of operation. As Kelley says, instead of being held several inches away from the organs which are to be manipulated we are separated from them only by the fascia and muscle which is about equal in thickness in all individuals. In case drainage is required I prefer to use a stab wound even in cholescystostomy. (Fig. 1 & Fig. 2.)

The closure of the transverse incision is one of the most agreeable features connected with it. One point which I have not seen mentioned, is the possibility of lessening the tension upon the tissues, providing there is any tension, which is unusual, by raising the shoulders so as to curve the dorsal and lumbar spine and thus reduce the distance between the ensiform and pubes, while sewing up. (Plate IX.) This relaxation is so often desired and accomplished in our daily examinations of abdominal cases that its application is at once apparent. The principle which has caused all surgeons to enthusiastically accept the transverse closure of umbilical hernia, seems to underlie the closure of these wounds also. I have made no attempt to suture the divided muscles. In closing we evert the edges of the first layer and overlap or imbricate the edges of the second layer (aponeurosis) sufficiently to coäpt the divided ends of the red muscle. (Plate X-1 & 2.) The catgut is reinforced by mattress sutures of silk-worm gut (Plate VII.), which are tied over a roll of gauze, generally above the wound. (Plate X-1 & 2.) I have paid very little attention to closure of the skin, which falls together automatically, leaving an almost invisible scar, which may often be placed within the pubic hair line.

The argument has been used that the closure of the transverse incision requires more time than does the vertical. This I have not found to be the case. The absence of tension, combined with the possibility of the operator and assistant beginning at their respective ends of the incision and both suturing toward the midline until they meet, has greatly reduced the time required for closure.

When work in both the upper and the lower abdomen is called for in the same patient, it may be a mistake to prolong an incision from one to the other field, especially the pararectal incision. Perhaps it is better to make a second incision in these cases. The slight loss of time will be compensated for by decreased trauma from forceful manipulation and by allowing more thorough work, besides the avoidance of severing the nerves and its ill effects. (Fig. 1 & Fig. 3.)

After operation posture may be employed to overcome tension upon the wound, and it has been a very agreeable feature connected with the after-treatment of these cases. A pillow or two under the head, combined with flexion of the thighs, removes practically all tension from the wound except in case of great distention.

In conclusion I would say, first, that the transverse division of the rectus will give the operator the best chance to deal with every conceivable pathological condition within the abdomen, with the possible exception of immense solid tumors, with more convenience and speed and less retraction and handling of tissues, with their resulting trauma and shock, than will the classical method, and that excellent authorities who have used the procedure and some whose opinions apply to muscles in general (Murphy, Crile, Martin, Micküliсz—loc. cit.) agree that it is perfectly safe to divide the muscle transversely; secondly, that I realize that this is a radical departure from the orthodox practice and that I am not prepared to recommend its adoption at this time despite its many apparent advantages and the opinions and arguments of these authorities; thirdly, that, in the procedure of Pfannenstiehl, we have a rational, safe, and convenient method of opening the lower abdomen, which appears to have certain advantages over the vertical method and is worthy of more general use.

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DISCUSSION

Dr. A. W. Abbott (Minneapolis): Dr. Farr has presented this subject so thoroughly and clearly that I have very little to say regarding it. There is one condition in which I dislike to use the Pfannenstiel incision, and that is in cases where it is inevitable that you are going to have infection of the wound. In those cases where a flap has been raised up so much there is likely to be an infection extending the whole length of the part that is turned up and you are likely to get a very large abscess. I had one experience of this kind, and since then I have avoided this incision under such conditions. It is true, in those cases one can make the incision clear through the muscle, and get a straight chance for drainage in case any part of the wound does become infected.

I think what Dr. Farr said in reference to the liability of hernia is correct. There seems to be what we may call a holding of the muscles in such a way by the patient (probably due to muscle-trauma), that they do not put strain upon it when they vomit, so that injury to the muscle is perhaps an advantage in itself.

In gall-stone operations I have used the incision, but where there is liability to involvement of the appendix with it, I have favored the longitudinal incision because a much shorter one can be made.

Dr. F. J. Plondke (St. Paul): I am glad that Dr. Farr did not recommend cutting the muscles, for I believe when it is done promiscuously it is a dangerous procedure.

The majority of cases where more room is required than can be obtained through the vertical incision, are pathologic conditions in the pelvis, usually pus tubes. While the abdominal incision in these cases can usually be closed without drainage and heal kindly by primary union, there are a certain number which become infected, and it is only reasonable to presume that in such a case the muscles will pull apart, and surely hernia is more apt to occur when these muscles are separated.

Another argument against cutting the muscles is the longer time it takes to close the wound. The transverse incision through the skin and facia down to the muscles, pulling the latter aside, is, I think, a good one, and I have used it quite extensively with satisfactory results.

We are indebted to the advocates of the transverse incision for having demonstrated to us that the muscles *can* be cut without great harm, for, in certain cases, notably in operations on the liver or the gall-bladder, it is often necessary to add a transverse to the vertical incision, in order to obtain sufficient room. It is well to know that this can be done with safety.

I agree with Dr. Farr that the superfluous fat in women with pendulous abdomens should be removed, this can best be done by transverse incision. It makes the woman more comfortable and gives a better support with less danger of hernia following.

I also agree with Dr. Farr that in the majority of cases, it is better to make a second incision than to lengthen the original one.

Dr. E. R. Hare (Minneapolis): In connection with Dr. Farr's paper I want to speak with reference to the anatomy of the abdominal wall. In the first place, I believe the character of the incision, whatever incision may be chosen, should depend largely upon the nerve supply in the abdominal wall, for we know that if we destroy the nerve supply we may have perfect healing for the time being, but later on there will be a loss of tone in the muscle involved in the incision, which will permit of a hernia following the operative intervention. We know that the abdominal muscles are supplied by the intercostals, and that in the upper third of the abdomen the intercostals pass inward and upward, that in the middle third they pass transverely toward the center, and in the lower third they pass inward and downward, and we can adapt the tranverse incision very nicely to the direction of these nerves and not destroy the nerve supply of the muscles themselves. After making an incision in other places than in the median line or the semilunar line, it is customary to split the muscle fibers, and we can follow the course of the nerve supply and destroy very little of it, but in the rectus muscle, if we separate the fibers in their direction we immediately destroy the nerve supply. We know it is true that if one nerve is destroyed then a compensatory supply will result from the branch above and branch below, and no interference will follow; but if two branches are destroyed there is a weak spot left in the muscle. We know in studying the rectus muscle we have certain transverse fibrous lines, which nature has provided in four or five places in some instances. These transverse lines are practically all fibrous tissue and increase the strength of the muscle, and lessen the danger of hernia. I believe that it is perfectly safe to cut across the rectus muscle in the lower half or below the umbilicus, because when it heals it simply leaves a fibrous scar, which acts as the linea transversa and will really strengthen the muscle, provided the nerve supply has not been destroyed, and you do not destroy the nerve supply in the transverse incision; consequently I am becoming converted to the advisability of the transverse incision, and I do not fear section of the rectus muscle, especially below the umbilicus, provided you get prompt healing.

With reference to the closing of the wound; I would not agree with the former speaker that it takes a greater length of time than to close a longitudinal incision. These muscle fibers will be held together without suturing by the overlapping or imbrication of the edges of the rectus sheath. These fibers will be held in direct apposition and will heal without the direct interposition of the suture material to hold them. If it is rational to make an incision in the line of the fibers of the aponeurosis of the oblique muscles, it certainly holds true with regard to the rectus sheath which is a prominent factor of the abdominal wall with reference to the prevention of hernia following section of the wall. So I agree with Dr. Farr that in so far as the nerve supply can be conserved in the transverse incision, it is the incision of choice with reference to the avoidance of post-operative hernia.

Dr. Farr (closing): I wish to thank the gentlemen who have taken part in the discussion of my paper. I did not expect the discussions would be so favorable regarding this incision. It is quite a radical procedure, and I hesitated to advise it.

I am not in accord with Dr. Hare with regard to the division of the rectus muscle preferably in the lower abdomen rather than in the upper, for my experience has been that the division above looks better. The reason I think so is that in closing the incision in the upper abdomen you have a very thick tissue to deal with. If you will recall the anatomy of the abdominal wall, you have the aponeurosis divided about the semilunar line, so that in the upper three-fourths or two-thirds of the abdomen you have a thick posterior aponeurosis, while below you have nothing but peritoneum. When you divide the rectus muscle low down in the abdomen you have, posterior to the muscle, only a thin layer of peritoneum to bring together, which will tear in any direction if you put any strain on it. In the upper abdomen you can do anything you want to do with the posterior layer, provided you draw it in an upward or downward direction. It is not so in the case of a vertical incision. In the latter I have been compelled, in using the ligatures or sutures, to have two assistants help me pull in order to bring the abdominal wall together, and I know others have had the same experience.

With regard to the length of time it takes to make the closure: I start in on one side, my assistant on the other, and we meet each other, and as a result we close the incision in a very few minutes.

The nerve supply of the abdominal muscles, according to Lenander, is so important that he goes so far as to suture them where he has cut the nerves in the abdominal wall. Where a Kammerer incision or other incision has been made, some of the patients have had paralysis of the skin and bulging of the abdominal wall, even though they had no hernia. In some cases both recti were cut completely off in the lower abdomen. In the beginning I did a few of these incisions, and I am awaiting the results. In the upper abdomen, when you cut the right rectus, you can get at the common duct or you can do any operation about the upper abdomen. If I were to recommend the transverse incision of the rectus, I should recommend it in the upper at this time rather than in the lower abdomen.

THE PHTHALEIN TEST IN A GROUP OF MEDICAL CASES*

By Henry L. Ulrich, M. D.
MINNEAPOLIS

The phthalein test, or rather the phenolsulphonepthalein test, was introduced by Rowntree and Gerathy[1] two years ago in a study on the functional activity of the kidney. These authors showed that by means of this drug a most delicate estimate was obtained of the functional variation of the kidney in various conditions, including renal changes *per se* and in changes in the organ due to obstructive processes lower in the tract. They have studied, clinically, normal individuals, acute nephritis, chronic parynchymatous nephritis, chronic interstitial nephritis, patients in various stages of uremia, cardiac, cardiorenal, and various miscellaneous medical cases; in surgical conditions of the urinary tract cases particularly of prostatic hypertrophy, also unilateral and bilateral disease of the kidney. In all of these conditions the test has shown its value, and because of its ease of application it supersedes, clinically, by far any other method hitherto devised for the purpose.

Goodman and Kristeller[2], Cabot and Young[3], Schmidt and Krelscher[4], Keyes[5], Boyed[6], Ehrlich[7], and Thomas[8] have substantiated this claim. Eisenbrey[9], working on dogs, has studied the output of the drug in spontaneous nephritis, and nephritis experimentally induced by potassium chromate, uranium nitrate, cantharadin, diphtheria toxin, snake venom, arsenic, hemolytic serum and also in prolonged anemia and extensive reduction of renal substance. A marked decrease of output was noted after these lesions were induced. He found the drug increased in the presence of renal lesions caused by nephrotoxic immune serum for which he can give no explanation. The drug was also increased in the early portions of severe nephritis induced after small doses of the various irritants and after unilateral nephrectomy.

According to Rowntree and Gerathy phenolsulphonepthalein "is a bright red crystalline powder somewhat soluble in water and alcohol, but readily soluble in the presence of alkalies." "It is nontoxic excreted with extraordinary rapidity and appearing in the urine normally within a few minutes of the injection. In alkaline solutions a brilliant red color is produced which is ideally adapted for quantitative colorimetric estimates."

The drug was discovered by Ira Remsen. Its lack of toxicity was proved by Abel and Rowntree, who further showed that it was practically all excreted by the kidneys. It is painless at the site of injection and can be sterilized by boiling.

The technic as given by the originators was to inject subcutaneously 0.6 gram in 1 cc. of slightly alkalinized sterile water, one-half hour before the patient was given 250 cc. of water in order to secure a free flow of urine. The patient was catheterized and the urine caught in a tube in which there was a drop of 25 per cent sodium hydrate The time of the appearance of the drug was signalized by a bright-red color in the urine as it came in contact with the alkali. This was immediately noted. The urine was then collected at hourly intervals for two hours. The respective hourly specimen was diluted with distilled water up to 1,000 cc. and read in a Duboscq colorimeter, on one side of which a standard solution of the drug was used. The percentage of hourly output was read. They lay great stress on the time of the appearance of the drug, as well as on the percentage of output. Later, they advocated intravenous and intramuscular injections in place of the subcutaneous method, the intramuscular being particularly recommended. In this they suggest following the Melzer method of injecting into the lumbar erector spinæ.

In normal individuals they found that the drug appeared in from five to eleven minutes, that 40 to 60 per cent was secreted the first hour, and 20 to 25 per cent was secreted the second hour; thus 60 to 80 per cent was secreted in two hours. "In health the elimination is practically complete in two hours, only a trace being present during the third and fourth hour." The time of the appearance of the drug following intramuscular injections is about the same as in the subcutaneous route, but the output in the first hour is increased 5 to 10 per cent. With the intravenous route the appearance is usually from three to five minutes, and 35 to 45 per cent is eliminated in the first fifteen minutes.

In my own technic I endeavored to approach as near clinical simplicity as possible. I gave no water to promote diuresis, and the time element was entirely neglected, the amount secreted in the two respective hours being the only point emphasized. The drug used was purchased, prepared for injection, and the injections were made in the lumbar erectores spinæ. The urine was collected one and two hours after the moment of injection. The specimen was diluted with tapwater to 500 or 1,000 cc. depending on the density of color after adding the alkali and the percentage read in a modified Helige's hemoglobinometer. This instrument is an adaptation by Rowntree and Gerathy for this particular test. It consists of a rectangular box in which there is a hollow prism containing a standard solution of the drug, usually 0.6 grams of the drug in 1,000 cc. of distilled water to which a few drops of sodium hydrate has been added. A smaller receptacle contains the dilute urine under observation. The prism moves on a sliding board until the density in color of the urine and the prism solution are equal. The amount of the drug is then read on the scale. The arrangement is such that light is passed through the urine and prism by means of an opaque glass in front, and the density of color is noted by means of a slit behind them. The rays in the slit are collected by means of a lens. This instrument is not as delicate as a Duboscq's but is sufficiently accurate for all clinical purposes.

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*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

Six active normal males were injected (Table 1) ranging from 24 to 47 years in age. Their average output was 51.6 per cent the first hour and 16.4 per cent the second hour, a total output of 68 per cent in two hours. I adopted arbitrarily 60 per cent as a fair medium average for normals. My readings are lower than those of Rowntree and Gerathy, which may be due to the fact that they counted their first hour from the appearance of the drug, which would add to the time of elimination some five to eleven minutes. Eleven cases with different clinical entities (Table 2), whose urine was normal, gave normal readings. Another group, 10 in number (Table 3), whose urine was normal, except in three cases, gave variable reduced readings. Case 8 excreting an excessive amount of sugar had an output of 32 per cent in two hours. No. 9 was a case of orthostatic albuminurea with a slight reduction 54.5 per cent. Case 10 was an old man complaining of his stomach, pain in the right hypochondrium, and a trace of albumin in the urine, and no casts at any time. His reading was excessively low, 13 per cent in two hours, so low that Rowntree and Gerathy would classify him in the uremic group. At the time of the test he gave no symptoms of any toxemia although he had complained of dizziness. It is quite possible the test in this instance had uncovered the real cause of the gastric symptoms,—a severe grade of renal insufficiency. Eleven cases (Table 4), with various clinical conditions in which there were kidney findings of a mild character and chronic, were read. Case 1, one of primary anemia and arteriosclerosis, secreted 18 per cent the first hour and a total of 35 per cent in two hours. This reading would suggest that his primary condition was a marked renal insufficiency. The test would indicate a marked renal condition. Case 3, who secreted 13.5 per cent the first hour was a case of carcinoma of the rectum, and the patient is in a state of cachexia.

Case 7 was a physician, complaining of vertigo at times and not feeling just right. His blood-pressure was 150, and his reading, 51 per cent in two hours, indicates a mild insufficiency.

Case 11 was also a physician, very active, whose only complaint was a high blood-pressure. The reading, 70 per cent in two hours, suggests exceptionally good function.

Six of these eleven cases, although they had slight urinary findings, were classified by this test in the rank of normal function.

There were three cases with marked urinary evidence (Table 5), with a reading of 22 per cent.

Case 1 was in uremia. Case 2, with a reading of 23.5 per cent gave no symptoms. He is bedridden. Case 3 findings gave us the clue as to his condition. He had entered the hospital with the possible diagnosis of uremia, or sun-stroke and alcoholism. The urinary findings suggested uremia, but the reading of the functional activity, 43 per cent, was too high for this and warranted a favorable prognosis. He was discharged fourteen days later, very much improved.

Six chronic heart and renal cases were studied. Case 1 was the sickest man I have ever seen that improved enough to be discharged. He was under observation for two years. His readings for the last three months while in the hospital never varied more than 7 per cent in two hours, the total average being 31 per cent. Case 4, with a total of 25 per cent, is dying. His reading was made some months ago. Case 6, with a reading of 15.5 per cent, a tremendous blood-pressure, of 230, and a hypertrophied heart, died three days later in uremia.

Table 7 represents three heart cases with renal signs. It was attempted to ascertain how much of their physical condition was due to passive congestion. For three days in succession 1,000 cc. of a hypertonic salt and alkaline solution was given, per rectum, by the drop-method. On two cases the moving up of the liver was noted. Their functional reading increased slightly—in the first 46 per cent to 50 per cent; in the second from 35.5 per cent to 59.5 per cent. The third case was a recent one of cardiac decompensation with marked edema and ascites. At the second reading four days later, the edema and decompensation were rapidly disappearing. The reading rose from 30 per cent to 54 per cent in these four days.

Table 8 gives a review of three eclampsia cases. The first reading in Case 1 was made the day after forcible delivery. It was surprisingly low,—0.5 per cent in two hours. Two days later it had risen to 15 per cent. This woman developed acute mania. One month later she was discharged with urine free from casts. Her mental condition was emotional. In No. 2 the first injection was given during a convulsion. It read a total of 18 per cent. Forcible delivery was followed by a marked change in the urine, and the patient appeared to be normal. Her reading at this time, which was only two days later, had risen to a total of 55 per cent. Five days later it had sunk again to 36 per cent. This drop prophesied trouble, which was verified two days later when the patient was reported as restless, giddy, noisy, and full of fear. There was subsequent improvement, with discharge in fairly good health. The third case presents nothing of interest except that her reading was high and that six hours after she had a convulsion. She was immediately delivered. No other readings were obtained.

Four obstetrical cases were observed (Table 9). Three of these were at term. They were in good health. The urine was negative and yet two of them gave lowered readings. The fourth case was two and one-half months pregnant. There was excessive vomiting. Her output was 53 per cent in two hours. The kidney in no wise could be blamed for this toxemia.

My group of cases, 58 in number, as well as the number of readings, 62, is not large enough to draw definite conclusions. That there is a reduction in the total amount and in the first hour when there is an acute condition of the kidney, my series gives satsifactory evidence. In the mild chronic kidneys, the slowly progressive diffuse nephritis, the findings are rather variable. The readings gave evidence in the three cardiorenal cases, which were consistent with the clinical improvements.

Finding two out of three obstetrical cases at term below normal function raises the point whether most gravid women are low at this period. From others of larger experience and from my own I feel that the test will distinctly add to our knowledge of renal values, in kidney lesions as well as in cardiorenal conditions, and that in chronic renal lesions repeated reading at short intervals will disclose some of the reasons for the variance which single readings so far have elicited. Such a series may also throw light on the possible compensatory functions of other organs in cases of very low function, yet the patients may appear to be in generally fair economy.

I wish to thank the superintendents and members of the medical and obstetrical staffs of the University and City Hospitals for the use of their cases. And particularly do I owe thanks to Dr. Harry Klein, house officer at the University Hospital, for making most of the intramuscular injections for me.

THE PHTHALEIN TEST IN MEDICAL CASES

Table 1

Normal Active Males.

No.	Name	Age	Urine	Condition	First hour, per cent	Second hour per cent	Total, per cent
1	H. K.	25	Normal	Normal	53	12.5	65.5
2	W. W.	25	Normal	Normal	50	15.5	65.5
3	S. W.	24	Normal	Normal	53	20.5	73.5
4	D. D.	29	Normal	Normal	60	17	77
5	H. F. W.	36	Normal	Normal	49	20	69
6	C. T.	47	Normal	Normal	45	13	58

Table 2

Hospital Cases with Normal Urine and Normal Output

1	A. H.	17	Negative; 6 mos. ago acute parenchymatous nephritis	Normal	45	20	65
2	L.	27	Negative	Third stage tuberculosis	....	65	65
3	M. C.	43	Negative	Addison's Disease, tubercular adenitis, bothriocephalitis	36	23	59
4	M. Y.	20	Negative	Hysteria	60	18.5	68.5
5	E. S.	18	Negative	Marked hysteria	45	18	63
6	M.	48	Negative	Nocturnal epigastric pain	48	14	62
7	M. B.	32	Negative	Multiple ar-arthritis	60	18	78
8	G. K.	18	Negative	Chronic tonsilitis	45	22	67
9	M. C.	40	Negative	Visceroptosis	41	20.5	61.5
10	M. K.	42	Negative	Double inguinal hernia	50	26	76
11	M. G.	24	Negative	Gastric ulcer	43	20	63

Table 3.

Hospital Cases. Output Reduced. Urine Normal in All But 3 Cases.

1	J. M.	54	Negative	Third syphilis	20	26	46
2	C. H.	18	Negative	Br. asthma	50	6	56

No.	Name	Age	Urine	Condition	First hour, per cent.	Second hour per cent.	Total, per cent
3	C. M....	20	Negative	Chronic rheumatism	37	14	51
4	S. B.....	20	Negative	Ulcer stomach	34	14	48
5	I. A....	60	Negative	Myocarditis, neurasthenia	21	18	39
6	McC. ...	56	Negative	Rheumatic Arthritis	30	23	53
7	S. A....	41	Negative	Aortic lesions, luetic ...	13	12	25
8	C. M....	51	Trace alb. low specific gravity	Gastritis?	6	7	13
9	F. S.....	17	Orthostatic alb. and a few hyaline	Asthenia ..	39	15.5	54.5
10	O. O....	38	Sugar, 45%......	Diabetes mellitus	27	5	32

Table 4.

Group in which there were kidney findings usually of a mild character—chronic.

1	M. L....	53	Trace alb., a few gran. casts....	Primary anemia, moderate arteriosclerosis..	18	17	35
2	J. S.....	43	Occasional gran. cast	Alcoholic gastritis..	38	23	35
3	J. T.....	60	A few gran. casts, trace alb.	Carcinoma of rectum*.....	13.5		
4	M. S....	50	Few gran. casts	Cirrhosis of liver.....	48	15	63
5	M. K...	32	Trace alb.	2nd anemia.	40	15	55
6	M. C....	38	Trace alb., few hyaline and gran. casts....	Bronchial asthma, chronic bronchitis	43	15	48
7	D. M....	48	A few hyaline gran. casts. B. P. 150	Heart slightly enlarged.	37.5	13.5	51
8	M. L....	48	A few hyaline and gran. B. P. 135	Hzbl. 70%..	46.5	15	61.5
9	A. J....	19	Trace alb., a few hyaline and gran. ..casts..	Mitral lesion, paroxymal arteriospasm....	35	24	59
10	O. N....	10	Few hyaline casts, trace albumen	Chronic tonsilitis....	30	16	46
11	D. M....	56	Few hyaline and gran. casts, B. P. 200	Hypertrophy of heart..	50	20	70

*Died Sept. 1st. Kidney practically gone on one side; marked sclerosis on the other.

Table 5.

1	R. C....	74	Sclerotic kidney	Bronchitis, arteriosclerosis*	7	15	
2	J. L....	60	Sclerotic kidney	Multiple anthritis†	11	12.5	
3	O. N....	42	Hyaline and gran. casts, marked alb. blood and pus..	Acute exacerbation of diffuse nephritis, anasarca‡	25	17	

*Uremia.
†No symptoms.
‡Improved discharge 14 days later.

Table 6.

Chronic Heart and Chronic Kidney Lesions

No.	Name	Age	Urine	Condition	First hour, per cent.	Second hour per cent.	Total, per cent
1	R. C....	46	Chronic interstitial........	Mitral and aortic[1]... 5/26 6/21	 16 17	 18 10	 34 27
2	J. P....	61	Chronic interstitial.........	Mitral[2]	22.5	22.8	45
3	J. S....		Chronic interstitial.........	Mitral	21	23.5	44.5
4	C. J....	56	Chronic interstitial.........	Myocarditis[3] ...	15	10	25
5	M. L....	50	Chronic interstitial.........	Mitral myocarditis[4]	10	29	39
6	J. C....	56	Chronic interstitial.........	Hypertrophy B. P. 230[5]	7.5	8	15.5

[1] Discharged.
[2] Died of uremia, Sept. 1, 1912.
[3] Edema dying.
[4] Discharged.
[5] Died 3 days later in uremia.

Table 7

Heart and Kidney Cases which were studied to see how much the urinary findings were due to passive congestion

1	E. H....	21	Slight alb., some casts....	Mitral insufficiency 7/9 7/13	 41 31	 5 19	 46 50
2	E. L....	28	Trace alb., gran. casts	Mitral insufficiency 7/3 7/13	 29 32	 6.5 27.5	 35.5 59.5
3	D. M....	50	Many gran. and hyaline casts..	Mitral insufficiency 8/1 8/5	 17 36	 13 18	 30 54

Table 8

Eclampsia

1	M. T....	35	Many hyaline and granular and epithelial casts ....6/3 Remarks: 6/1/12 Delivered of gravid uterus. 6/5/12 Convulsions. 6/6/12 Acute mania. 7/1/12 Partial recovery, urine free from casts, mental condition emotional................6/5	00 5	.05 10	.05 15
2	M. E....	30	Highly colored dark, fecal in appearance, much bile, many hyaline, gran. and waxy casts, all bile stained. Patient in a convulsion....6/3 Color amber, oz. 100 secreted in 24 bours ....6/5 Hyaline and granular casts, much bile, looks like fecal matter ....6/10 Remarks: 6/12/12 Patient restless, giddy, noisy, full of fear. 7/1/12 Discharged, much improved.	00 37.5 16	18 18 20	18 53.5 36
3	M. J....	22	Marked albuminuria (convulsion)	32	17	49

Table 9

Obstetrical Cases

1	M. J....	24	Trace alb.......	9 mo. pregnancy[1]...	30	.08	38
2	M. D....	19	Neg.	9 mo. pregnancy[2]...	25	23.5	48.5
3	H. C....	32	Neg.	9 mo. pregnancy[3]...	45	15	60

[1] Primipara, no history of nephritis.
[2] Primipara.
[3] Multipara.

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OUR DUTY TO THE PUBLIC IN THE COMBAT WITH TUBERCULOSIS*

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A paper on tuberculosis may not be so interesting as one on some subject of surgery, especially if confined to the general type; but I have selected this subject because there is more room for good work to be done along the line of investigation, education, and prophylaxis, teaching the public, and the individual suffering from this disease, than in any other disease that we are called upon to treat.

No disease has of late occupied the public mind as much as tuberculosis, especially in its pulmonary form. Statistics show that more people die of consumption every year than of any other disease. The combined death-rate of diphtheria, typhoid, measles, and scarlet fever, is not that of tuberculosis alone. Statistics also show that each year one million ninety-five thousand die of this disease in the United States alone. This means that each day three thousand, and every minute of the day two, die of this fatal, yet preventable disease. For ages past, tuberculosis has been the most common cause of death. It has been estimated that one person in six throughout the world dies of it. Cure is possible in certain cases and under proper conditions. But our great aim at all times should be prophylaxis, which can be accomplished only by education. Education of the patient, as well as of the family, and of people who daily come in contact with the patient, and, last but not least, of the public at large.

The laity are becoming familiar with the gospel of proper hygiene and disenfection; and indifference is giving way to interest. Much remains yet to be accomplished, and, for years to come, the consumptive, like the poor, will be with us always. The physician in general practice is called upon to treat cases; not only this, but to protect other members of the family. Very often he will find it necessary to issue very minute instructions for the guidance of the patient and those in charge. These instructions should always be in writing, or, better still, in a printed leaflet. People should be taught that by far the most fertile source of dissemination is the dried sputum, as shown in the studies of Nuttall, who says that the twenty-four hour sputum of a consumptive may contain between three and four million tubercle bacilli; and Bollinger has shown that 1 c.c. of sputum may contain from eight hundred and ten thousand, to nine hundred and sixty thousand bacilli. Perhaps nothing more forcibly emphasizes the importance of danger from dried sputum in dust than the investigations of Strause, who demonstrated the presence of tubercle bacilli in the nasel cavities of healthy individuals who frequented rooms, or even the wards, of the consumptive. Of twenty-nine such persons examined, nine gave positive tests, as proven by guinea-pig inoculation. Again, von Kruger took sixteen specimens of dust from medical wards in which phthisical patients had been for weeks, and he obtained two positive results. From eight specimens of dust from other localities where no such persons had been, he got only negative results. Kurtsman demonstrated the tubercle bacillus in the dust of public waiting-rooms, railway-coaches, sleeping-berths, and street-cars. It has also been known that cattle may transmit the tubercle bacillus, as demonstrated by Heim and Gasperin, who proved that the bacilli will retain their virulence in butter for a period of one hundred and twenty days. Some interesting investigations have been made by Baldwin, who showed that the patient's hands may contain the germs. He showed that out of fifteen patients examined ten of them contained tubercle bacilli. Hence, careful instructions should be given to all such patients, and to those who handle any clothing, cuspidors, or handkerchiefs used by these patients.

There are a great many other sources of infection. The saliva of patients suffering from this disease has been found to contain tubercle bacilli and the germs may be transmitted from the sufferer to others by the act of kissing; also through the drinking-cups, eating-utensils, spoons, and the medicine-bottle. Innumerable other lurking-places present themselves, such as money, notes, books, meat, milk, public libraries, second-hand clothing, and rummage sales; and even bread has come to my notice in two instances where men were employed in a bakery who had not only the suspicious cough but demonstrated the bacillus in the sputum. Midwives, and at times physicians, who are in the habit of blowing into the mouths of infants to bring about resuscitation, undoubtedly thus transmit the bacilli.

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*Read at the 31st annual meeting of the South Dakota State Medical Association at Mitchell, May 22 and 23, 1912.

Our duty is plain, namely, education. I believe an excellent method in preventive measures to stop the spread of tuberculosis, is the formation of societies for this purpose, these societies to be composed of laymen and medical men. A meeting could be held, discussions could be given by medical men, and small brochures could be arranged, printed, and issued for enlightenment and reference. Circulars could also be issued by boards of health in clear, precise, untechnical, and comprehensive language. They should call attention to the danger from an unclean and unscrupulous consumptive, and explain wherein the danger lies, and how to avoid it. But the circular should also explain that, if proper precautions are taken, there is no danger in associating with such a patient. To avoid frightening very impressionable natures it should also state that pulmonary tuberculosis is one of the most curable, and most frequently cured, diseases, and that the earlier the patient puts himself under the care of the physician the more chance has he for an early and complete recovery.

With reference to bovine tuberculosis as a causative factor of consumption in man, opinions in the medical profession vary, yet we have cases on record that seem to leave very little doubt that this source should be earnestly taken into consideration. I shall quote two cases from Prof. Oliver's investigations. Thirteen girls in a boarding-school were taken with tuberculosis. Some of them had the disease first in the bowels, and six died. The source was traced to a cow with a badly infected udder. Another case: A veterinarian was called to examine a cow that had the reputation of being the finest on the farm, until she grew emaciated and died. On account of her splendid condition the farmer had selected her milk for his own infant. The child died of tuberculosis at the age of two and a half years.

Cases like these should cause us to hesitate in saying that bovine tuberculosis is not transmissible to man. Cases like these also seem to prove an old theory, which I have always held out to mothers, that it is safer to feed milk from several cows than from one, and in this way dilute possible dangers.

We hold that the bacilli if taken into the alimentary tract will be taken care of by the acids of the stomach and succus intericus. This is perfectly true in the adult under proper conditions, and to a certain extent under the same conditions in the child. We must admit that the prevalent diseases of infants up to two or three years of age are digestive troubles, both gastric and intestinal. In considering the pathological processes in these digestive disturbances, we may have erosions or even ulcerations of the epithelial tract, which at the tender age of infancy is not fully developed and consequently has not the resistance the same tract would have in the adult; and this condition once existing, tubercle bacilli or any other germ taken into the alimentary canal would find a lodging-place and at once begin its deadly work.

I believe at the present time it is estimated that about four per cent of all cattle are tubercular, and the greater number are found among the blooded stock, and many of these herds are supplying milk to the cities, and no one even mistrusts the existance of tuberculosis until found out by accident. I will quote three cases in support of this fact: Eight head of cattle out of a herd that were supplying milk to a city of about ten thousand people dried up in spite of being well fed, a veterinarian was called in, and he found that seven out of eight responded to the tuberculin test; four others that began to decrease in milk were taken to the packing-house after being fed for a period, and all four were found tubercular and were discarded as such after post-mortem findings. Another case: The owner of a herd of blooded cattle decided to have some of them tested, and called in a veterinarian who found that twenty-five out of seventy-five responded to the tuberculin test. This herd is still supplying milk to the city, and fifteen of the cows whose milk was sold for the use of infants only had responded to the tuberculin test. Still another case: A farmer owning blooded stock had made a sale across the state line and for precautionary measures decided to have some of them tested. Out of seven, five responded to the test.

In conclusion: There seems only one course for us to pursue, as before stated, and that is to educate the people, by lectures and literature, and by practical demonstrations against the promiscuous spitting on floors, walls, sidewalks, etc., against stirring up dust in their homes, against street-sweeping without first sprinkling, etc. Let us recruit into our ranks teachers, ministers, and the press. Let us get in closer touch with our representatives and urge them to introduce more stringent laws in our state covering these conditions, and when once passed such laws should be followed to the letter.

As to bovine tuberculosis and the dangers therefrom in milk and butter: Our laws should enforce the testing of milch herds and such laws should have an indemnity clause to the effect that if any herd is found to be tuberculous the infected animals shall be killed and the owner paid a certain sum, as at present in the case of glandered horses.

DISCUSSION

Dr. J. G. Parsons (Sioux Falls): I think that Dr. Kreisel's paper is very timely and is an evidence of a growing sentiment on the part of the profession that we have a duty to perform to the general public in the way of enlightening them on the methods of preventing disease. Probably some of you have seen some of the pamphlets on the stand beside the door, and if you have had a chance to look them over you find they are circulars issued by the Committee on Public Health Education of the American Medical Association, which committee has for its direct object the dissemination of sanitary information among the laity. By means of popular talks given in such language that it will be intelligible to the average layman, they are endeavoring to accomplish some beneficial results. This work was started in this state a couple of years ago. In Sioux Falls we arranged for a series of lectures. The work of the state was under the supervision of Dr. Hainer, then practicing in Sioux Falls, and she made an effort to get the work started both in the cities and in the state at large with rather indefinite success, but they took hold of it in some places. Dr. Hainer died about a year ago, and since her death the Secretary of the National Committee on Public Health Education, Dr. Eleanora Everhard, of Dayton, Ohio, requested me to assume the responsibility of pushing this public health education in South Dakota. For that purpose I have written the members in different parts of the state. We have organized in Sioux Falls a course of lectures, and several have been given and more will be given later. These lectures are given in the high school auditorium and in different educational institutions for the purpose of enlightening the general public along these lines. I wish each member present would take one of these pamphlets and look it over to get an idea of what the possibility of this public education is. These lectures have been very practical and have accomplished a great deal of good in connection with bringing the matter to the attention of the general public.

I do not know that this is the proper time to bring up this matter, but I would suggest that this Association endorse this work, and that a special request be extended to each district society in the state to actively take up this work during the coming year. I believe it is one of the plain duties of our Association to educate the public along this line.

Dr. W. G. Smith (Sidney): Regarding the matter of educating the public: The American Medical Association sent out a number of men who delivered lectures at points selected by the Secretary of our State Association. About the time that the doctor who was to deliver the lecture came to South Dakota there appeared over the signature of the secretary of the State Board of Health, Dr. Vercoe, in the Deadwood *Pioneer-Times,* an article against it, and not only that, but he took a position against the Owen bill, and it seems to me that we ought in some way to let the people know that we do not coincide with the views of the present secretary of the State Board of Health. It seems to me there must be a political movement behind the matter, because if he was well grounded in medical education he would be one of us and would be assisting the movement started by the American Medical Association, instead of trying to hamper it.

I dislike very much to call attention to this matter, but since it has become public, I want the people to know that the present secretary of the Board of Health of South Dakota is not active in the work of this Association, and not using his influence for educating the people along the line of medicine, but advises the public that this work is carried on in behalf of the medical men of the state for the purpose of forming a national health department in order to throw the practice of medicine into the hands of a certain class of men.

Dr. H. T. Kennney (Pierre): I want to say that Pierre was fortunate enough to obtain one of these lectures, and we were fortunate enough to obtain Dr. Krumbine of the Kansas Board of Health. He is one of the men who are doing things. He has a number of different departments on the Board of Health. The death reports are not historical; they do not make them a matter of history, but they use them as information on the question, how we are dying and why we are dying. While he was at Pierre I took him over to the state house, and he looked around and said, "Why, doctor, this State Board of yours is a joke." About half an hour later he said to me: "This is not a joke; this is a tragedy. You people are not doing anything. You are using your death-reports as history, instead of using them for the benefit of the people of South Dakota. You are not doing one bit of work that is a credit to you. He further said: "You must do something when the next legislature meets if you expect to come up to the standard of other states."

I know this is rather humiliating to the state of South Dakota, but it is the opinion of a man who knows what he is talking about.

Dr. S. B. Stegeman (Onida): I am heartily in accord with everything said in regard to the spread of tuberculosis and the prevention of disease. I also agree with what our worthy President, Dr. Smith, has said in regard to this matter and also in regard to the Indians. I believe the paper that has last been read upon the subject of tuberculosis ought to have a wide circulation.

In speaking of the State Board of Health, so far as I have been able to secure information, it seems to me lacking in force, lacking in executive ability, and each and every position is accordingly handicapped to a certain extent. It is the duty of a physician to educate his patients, and not only his patients, but all members of the human race that come within his reach, and he should instruct them in every way possible to preserve their health and to prevent those diseases which are making the death-rate in some portions of our country so high. I think the members of this Association ought to take hold of this matter vigorously during the coming year and do everything in their power to educate the public along these lines.

Dr. E. Klaveness (Sioux Falls): This paper offers me a nice opportunity to ask the writer of the paper how does he expect the present State Board of Health to be willing and ready to do this work when we have this information given us. It is true that they owe it to the people of this state that our health be protected, but as a matter of fact it is not going to be done until things are on a different basis. The chief executive of this state is making statements that the last legislature appropriated for the welfare of the people of South Dakota not less than sixty thousand dollars, and in order to enlarge upon that statement he tells us that an appropriation of seventeen thousand dollars was made for the food and dairy commission, and that there was appropriated fourteen thousand dollars for a tuberculosis sanitarium. The medical profession of this state has failed to secure a firm influence upon the people of the state. What encouragement can we expect from our public officials. I am informed that there is a possibility of getting into the chief executive's chair a Christian Scientist. It is a labor of love that the doctors are doing in carrying out this missionary work, because no support has been given us by the authorities of the state.

While I have the floor and we are speaking on the subject of education that should be given to the citizens, I would like to offer the recommendation that the instruction be so specific that we do not throw the people into a fit and scare them by telling them something that they do not understand. The prevalent idea that a tubercular patient is fraught with danger is based solely upon the lack of physiological and bacteriological knowledge. Tuberculosis can only be contracted when tubercle bacilli have dried to dust and are inhaled. It may also be contracted through excretion of the skin, when we have tuberculosis of the skin. Further, by swallowing dust particles with our food it may also get into the intestinal tract.

In this connection I wish to say that a great injustice has been done from time to time to people who apply for insurance. A great many of them have been told that because their father and mother or a brother or sister had tuberculosis they are unfit to have insurance protection until they reach the age of thirty-five or forty years. It is merely through external agencies as a matter of fact that tuberculosis can be contracted. On the other hand, it is very well known that it is a great rarity to be able to demonstrate tuberculosis in a newly born babe. I had occasion recently to see statistics from a life insurance company of Europe, from a country where tuberculosis is common. One medical examiner had held that it was a hereditary disease and would, therefore, not accept a risk if tuberculosis had existed in the family. Another medical examiner took the position that it was an infectious disease, and that if a man or woman was in good health, no matter how many of his relatives had died of tuberculosis, he was a good risk, and acting upon that theory he had for twenty years accepted applications of insurance and had no more death losses from tuberculosis than from any other disease. I mention this merely because I think injustice is being done to a good many men who are at the most favorable age to get insurance.

Dr. Mortimer Herzberg (Vermillion): I cannot help but feel glad that this subject has come up for discussion. This is the third time I have come to a meeting since I have been in charge of the State Laboratory, and it is the first time I have heard any talk as to what should be done, and how it should be done, in the matter of securing health-legislation. It is rather embarrassing for me to enter into a discussion of this kind because it looks as though I was fishing for something, but I am not. I think we are of one accord in this matter, but we have been forced to say what we think about the work of the State Board of Health because the public is after us. The public will know the truth sooner or later. As a matter of fact, I do not think the Board is open to any criticism. Very often the Board is maligned and criticized because it is expected to do the work of such a board, with an appropriation of six hundred dollars, which is all they had up until the session of the last legislature. At the present time they have two thousand dollars, and I am told they have some difficulty in spending that. The legislature is representing the people of this state, and the Board of Health is doing the work that the people of this state want. I can say that positively. I know that the last legislature—I have definite information on this subject—would have appropriated a much larger sum than two thousand dollars, but in some way it got noised abroad that they did not need more than two thousand dollars for the Board of Health. I believe that is true. The first year I came to South Dakota and organized the laboratory of the state we were given five thousand dollars for two years to organize, equip, and pay running expenses of the Board of Health Laboratory for two years. North Dakota received five thousand dollars in two years to organize its laboratory and five thousand more to run it. We have a laboratory, and at the end of two years a physician said, "If you will let me know how the money has been expended and what work you are doing I shall be glad to look after your interests in the legislature." I explained, and told him that if we were given twenty-five hundred dollars at the end of two years I thought we could get along. He said he thought the legislature would be willing to give us what we absolutely needed. I wrote that to Dr. Mertens and he wrote me a nice letter and stated that there would be absolutely no difficulty in getting anything that we might ask for within reason. That is the way affairs stand with the legislature. They will give us anything we ask for within reason, but we had to show a reason for everything we do. You cannot do work on six hundred dollars a year, and I told him so when I wrote him before. I do not think it is fair to criticise the Board of Health as such on a six hundred dollars proposition. It is a six hundred dollar board of health, and we must be satisfied with what we get. When we have a five thousand dollar board of health, and give them that much money, then we shall see whether we shall get five thousand dollar men on the job.

Another side of the work I would like to speak about. For the last two years, aside from my work as director of the work at the University, and in connection with my work as teacher of pathology, I instituted a popular course in public hygiene. The first year I gave a course of lectures on public hygiene and we had sixteen or seventeen students, but they all became thoroughly interested, a mixed class of boys and girls, and we went into the subject in such a way that they got what some of the other students did not get. This year I decided not to give the course because of some increased work, but I was forced into it after an appeal from the students and certain members of the faculty. I simply have not time to give it. The work of the State Health Laboratory has increased very rapidly so that I can anticipate almost every moment of time during twenty-four hours. That shows, I believe, to a certain extent that the pupils of the state, in supporting such a course, are open to health instruction. We study all sorts of things in this class. We do not hesitate to speak of genito-urinary and sexual diseases, and tell them that they might as well learn it now, as through some unfortunate experience later on.

So much for the general legislative situation, and so much for the work we can do with the people.

There are only two other points I wish to speak of. In the first place, I wish to assure the physicians that I am always at their service. I always feel hurt when I hear of a case of tuberculosis in which I have not examined the sputum. I feel that ought to be sent to me, if for no other reason than to have at least a record of such cases. I have statistics, but I have not brought them with me. I am making a record of tuberculosis and other cases of that sort which go to make up our state statistics.

In reference to Dr. Kreisel's paper, I think it is well to instruct the public. I do not believe we should exaggerate either one way or the other, because people will soon come to find out the exact truth of the matter. In the first place, I think we make a grievous mistake when we tell any tubercular patient that he will be absolutely cured. I do not believe that there is a man present who believes that any tuberculosis patient can be absolutely cured. We know cases that heal up and get well and it is supposed that the case is absolutely cured, when all at once through some affection or other, tuberculosis again lights up. It is better to tell the tubercular patient that he will remain cured so long as he will take care of himself and keep himself in a generally good condition rather than to leave him under a false impression that he is absolutely cured and that he can drink beer and whiskey and raise a row with the women, or do anything else that he pleases that might endanger his health. I could talk for a considerable length of time along this line, but as there are others who wish to discuss this topic I will say no more.

Dr. H. M. Finnerud (Watertown): I intended only to ask a few questions, but the greater part of the answers I have anticipated have already been given by the various speakers. In regard to the health law of this state, is it a law that is wrong or are you satisfied with it? I am asking that question now for the reason that one chance out of two I may be out for the legislature next winter. I shall either be elected or I shall not be. (Laughter.) Of course, I do not understand anything about the law; I do not know how to draft a bill, but I might assist materially in regard to getting a bill through after it has once been drafted in the proper form. Under the present arrangement the personnel of the Board is continually changing. An efficient secretary or superintendent may be elected by the Board, but he does not remain in office long enough to do much good. There are new men on the Board every time a new administration gets in, and under that arrangement you never have a superintendent of the Board of Health for more than two consecutive years. The duties are new to every man when he first goes on the board. He may learn something about it during his year of service on the Board as superintendent, but at the end of that year he steps out and the next man steps in. It seems to me we can never get efficient service from the superintendent in that way. They are general practitioners, and as a rule they are also politicians, if they were not they would not be on the Board. I think the Board of Health should select a superintendent, one that is technically qualified for the position and if he is an efficient man he should be retained in office year after year, as long as his services are satisfactory, and let the members of the Board of Health have the questionable honor connected with it,—let them enjoy it to the fullest extent, but let them have a superintendent who knows his business. The work done by the superintendent at the present time under the present arrangement is, of course, almost exclusively clerical work. A clerk or a stenographer will do the greater part of it. Fortunately, we have a public health department connected with the University where scientific work can be carried on, but the superintendent should devote his entire time to the business of the Board and be paid for his entire time. I think Minnesota has not changed its secretary of the Board of Health for years. Dr. Bracken has been connected with it for years, regardless of the change of administration or the change of politics. Whether the administration has been republican or democratic, Dr. Bracken has been serving continually, and the record made by the Board of Health of that state speaks for itself

A bill of the kind that would embody what you want should be presented to the next legislature. I believe we can get the law that we want and that we need. I am sure that you can get a law through the legislature that will represent the wishes of the physicians as far as public health is concerned if the matter is presented in the right manner, but under the present law both the physicians of the state and the Board of Health are handicapped.

I really rose to ask the question, what sort of a health law would be satisfactory to you gentlemen in case I should happen to slide through. I should be very glad to do whatever I can in that direction, provided always that I get there. (Laughter.)

Dr. M. C. Johnston (Aberdeen): It is impossible to expect efficient work from the Board of Health on a six hundred dollars a year basis. It takes more than two thousand dollars a year to run a state board of health in South Dakota. I talked with Dr. Bracken, of Minnesota, not long ago, and the lowest estimate that can be reasonably arrived at to maintain an efficient board of health service would be about fifty cents per capita for population, and that would be something like two hundred fifty thousand dollars according to the population of South Dakota. We are paying something like two mills per capita. I want to say that I do not think it is a proper thing for a board of health to enter into a campaign of denouncing the educational work that is done by this Association. Such a thing should be condemned by this body because it is wrong. The lectures we had in this state during last winter were beneficial and were largely attended by the general public. Wherever they were given the public derived a great deal of benefit from them. As far as qualifications of members of the State Board of Health are concerned, I would like to suggest that a bill be presented which would provide that the Board of Health be appointed from members suggested by this Association. This Association should select fifteen men, or recommend fifteen men to the governor, say, from whom he should select five men to constitute the Board. They should be paid an adequate salary, or at any rate an adequate remuneration for their services, and they in turn should select a secretary with the necessary scientific qualifications, and he should be paid a salary sufficient to enable him to properly do the work required of him, and he should also be allowed enough for the clerical work that may come up in his office. They should have the power to appoint such a man, and if he proves inefficient they should also have authority to discharge him. The appointment should absolutely be free from politics. Let them enact the proper law, let them provide funds enough to carry out the work and such a board will render very efficient service to the state.

Dr. Kreisel (Essayist): I have not much to add to what has already been said. I am very grateful for the way in which this paper has been received and discussed, and about the only thing I wish to add is this: We represent here every part of the state, and we come in contact with representatives of the next legislature, therefore we could in the mean time place the matter before our respective representatives, and I am sure that Dr. Finnerud will do his share of work in that direction. We can ascertain what their attitude is in regard to this matter, and enlighten them on the subject as much as possible, and then later we can appoint a committee to draft such a bill as we desire to have presented.

BOOK NOTICES

General Surgery. By John B. Murphy, M. D. Practical Medical Series, 1912, Vol. II, Year Book Publishers, Chicago. Price, $2.00.

This volume is an excellent résumé of the progress of surgery during the last year and, as such, covers the field briefly, but efficiently. The most discussed surgical topics of the day, such as joint surgery, open and closed methods of treatment of fractures, arterial suturing, and vaccine treatment, are thoroughly reviewed and discussed by Dr. Murphy in his well-known able manner. Robitshek.

The Practical Medicine Series, 1912, Volume No. 3 Eye, Ear, Nose and Throat. Edited by Casy A. Wood, C. M., M. D., D. C. L.; Albert J. Andrews, M. D., Gustavus P. Head, M. D. The Year Book Publishing Company, Chicago. Price per volume, $1.25.

Of this book of 343 pages, 158 are devoted to the diseases of the eye, 82 to the ear, and 43 to the nose and throat. It is a synopsis of all the good literature of the past year on these subjects. There is a very practical index of the subjects with references and also of the authors. Each article is recorded, so that the reader may know from which journal it is taken.

The department on the eye, alone is worth the price of the book. It takes up papers on the different methods of the examination of the eye. The ocular hygiene paper recommends the 1 per cent solution of silver nitrate in the prevention of ophthalmia neonatorum. The discussion of the education of high myopes is then taken up, followed by articles on refraction and accommodation; bacteriolgy of the eye; the diseases of the conjunctivia, sclera, and cornea; different cataract operations; diseases of the lachrymal apparatus; diseases of the retina and optic nerve; toxic amblyopia; ocular muscle conditions; glaucoma; injuries; tumors of the eye and orbit; and closes with a very excellent discussion of the eye in general diseases and ophthalmia therapeutics. Dr. Wood seems to have had the faculty of picking out the meat of the nut here, as in all of his writings.

The diseases of the ear by Albert J. Andrews is excellent. These subjects also include tumors of the brain, meningeal inflammation, and brain abscesses. The article on the internal ear is especially good.

The nose and throat by Dr. Head is very good.

D. F. Wood.

A Manual of Clinical Diagnosis By Means of Laboratory Methods. By Charles E. Simon, M. D. Cloth, $5.00 net. Lea & Febiger, Philadelphia and New York.

This old friend returns to us revised and greatly enlarged. A new section occupying nearly one-half of the work has been added, in which there is a laboratory diagnosis of each disease arranged under its name in alphabetical order. This will undoubtedly add to the value of the book for many. Its original good qualities are so well known to the students of medicine and practitioners that they require no comment.

A Text-book of Practical Therapeutics. By Hobart Amory Hare, M. D. Cloth, $4.00, net. Lea & Febiger, Philadelphia and New York, 1912.

This is one of the best works on therapeutics in the English language. In a clear and concise manner both old and new remedies are considered and the author's personal views and opinions add charm and interest. The author says, "There is no more miserable object in the presence of disease than a therapeutic agnostic or a therapeutic nihilist."

A careful study of this book will do much to remove theh feeling of agnosticism and therapeutic nihilism that, on account of lack of knowledge of therapeutics, is all too prevalent in the medical profession.

If one should offer a suggestion for future editions, it would be, that, inasmuch as the book is intended for the practical benefit and information of students and practitioners who should be encouraged to prescribe palatable and up-to-date remedies, the author should not attempt to comment on all the drugs of the pharmacopœa and thereby confuse the student and add unnecessary burden on his memory, but leave out, or put in a part by themselves or in an appendix, such antiquated remedies as allspice, manna, white oak bark, valerian, buchu, uva ursi, logwood, garlic, pinkroot, pareira, pumpkin seed, cusso, kamala, rhue, waho boneset, dandelion, and a lot of more such stuff which can easily be replaced by newer, better, and more pleasant remedies. Anderson.

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MINNEAPOLIS, NOVEMBER 1, 1912

POST-GRADUATE COURSE AT FORDHAM UNIVERSITY

"The International Extension Course in Mental and Nervous Diseases" was given before the Medical Department of Fordham University, in New York City, September 9th to September 28th.

The students of Fordham University were invited to attend the course, but the class was made up mainly of medical men interested in mental and nervous diseases.

About sixty men took advantage of the post-graduate work, coming from all parts of the United States. The course was particularly interesting because the lectures were delivered by men of international reputation.

Dr. Henry Head, of the London Hospital, England, gave an outline of his new investigations into the functions of the nervous system, and it was a remarkable exposition. He is an interesting man and lecturer, and his demonstration of methods of examinations was particularly valuable, as it showed his great care in details. He had all sorts of devices, apparatus, and charts to illustrate the English method of diagnosis and localization. He is recognized as one of the greatest living research men in his studies of the nervous system.

Dr. Gordon Holmes, lecturer on physiology of the nervous system, London University, gave a number of instructive lectures on diagnosis of diseases of the nervous system. Dr. Holmes is a younger man than Dr. Head, but he has all of the enthusiasm and experience which make such lectures worth going a long distance to hear.

Dr. C. J. Jung, of Zürich, the associate in psychiatry in the University of Zürich, gave a series of lectures on psycho-analysis, which embraced the views of Freud and his own experiments and observations.

Dr. Alwyn Knauer, of Munich, the assistant to Professor Emil Kraepelin, lectured on mental diseases, and told of the Kraepelin classification.

Dr. Nicolas Achucarro, of Madrid, coadjutor of Ramon y Cajal, gave a course on histology of the nervous system.

Drs. Carl L. Alsberg, M. D., Ph. D., Washington, biological chemist to United States Government; H. H. Goddard, Ph. D., psychologist of the New Jersey School for Feeble-Minded Children; J. V. May, M. D., president of the Commission of Lunacy, New York State, and late Superintendent of the Matteawan State Hospital; Colin K. Russell, M. D., of McGill University and of Victoria Hospital, Montreal; and William A. White, M. D., Superintendent of the Government Hospital for the Insane, Washington, D. C., finished out the course in their various lines of work.

The advanced course of this order is one of the opportunities of a lifetime, and to those who are interested in nervous diseases the advanced work and theories offered were unsurpassed.

Next year a different line of work will be given by equally eminent men from various parts of the world, and, no doubt, they will be attended by a much larger class.

THE INTERNATIONAL CONGRESS IN WASHINGTON

At the recent meeting of the International Congress of Hygiene and Demography in Washington, D. C., the visitor found it very difficult to choose a Section which he might attend with profit. Owing to the size of the Congress, and the number of Sections outlined in the official program, it was often impracticable to go from one place to another. Each Section had its special adherents, and not infrequently the Section papers would have interested the entire Congress. For instance, the Section on "Industrial and Occupational Hygiene" was particularly good as it embraced a very large field in which all sanitarians find attractive topics for study. "The Physiology and Pathology of Work and Fatigue" took up the questions of "The Relation of Food to Fatigue;" "The Effects of Temperature and Humidity on Fatigue;" "Fatigue Factors in Certain Occupations;" "The Study of Fatigue and Its Application to Industrial Workers." This symposium was followed by one on "Fatigue Neuroses;" the various "Occupation Neuroses;" "The Effects of Working in Compressed Air;" "The Effects of Exposure to Intense Heat;" "The Diseases and Accidents of Miners, Tunnel-Workers, and Workers in Electrical Fields," and "Those Who Work in Metals." This Section also included the "Medical Examination of Employees," and "Safety Devices and the Prevention of Accidents;" "The Protection and Welfare of Workers;" "Governmental Study of Occupational Hygiene;" "Sex Problems in Industrial Hygiene;" "Age Problems in Industrial Hygiene;" "Tenement Houses;" "Unnecessary Noise."

When the delegates found that most of the other Sections embraced an equally large field, it was no cause for wonder that they filled the exhibition hall to see rather than to hear. The exhibits were wonderful and well centralized, and they dealt with all of the practical problems which were discussed in the various Sections.

The army and navy exhibit showed how they care for the soldiers and sailors; the United States Steel corporation showed its methods for protecting its workers; the Bell telephone system, its methods of caring for, feeding, and amusing the employees; the large shoe house at Beverly, Mass., showed how thousands of workers are employed and protected, and furnished with both theoretical, technical, and practical educational means. All of these methods on the surface looked like a big philanthropic enterprise, but, as a matter of fact, these great corporations find that it not only pays their employees, but pays employers directly to keep their workers in good health. It creates a higher standard of efficiency and cheerfulness, and prolongs the working life of the individual.

Three of the great insurance companies had a phenomenal exhibition illustrating the method of caring for their policy holders. Three or four states in the East combined to demonstrate their work in mental hygiene.

Minnesota participated in a small way in an exhibition of water-purification and laboratory apparatus for field work, and was awarded high honors.

The lecture-room in the exhibition hall was in almost hourly use. Lectures on various subjects, either with or without lantern slides, always had good audiences.

The evening orations, delivered by such men as Sir Thomas Oliver, University of Durham College of Medicine, Newcastle, England, on "Dust and Fume-Foes of Industrial Life," and the address by Dr. Jacques Bertillon, Chief of the Bureau of Municipal Statistics, Paris, France, "Sur la Mortalite et les Causes de Mort par Professions," and the address by Ministerialrat Dr. Zahn, Director of the Bavarian Statistical Office, Munich, Germany, "Die Deutsche Arbeiterversicherung und ihre sozial-hygienische wie sozialpolitische Bedeutung," were well attended, showing the interest taken by the visiting delegates.

At the opening of the Congress all of the representative delegates from the various nations were grouped on the platform, and after Dr. Henry P. Walcott, President of the Congress, delivered his address, the Honorary President, the Executive of the United States, William Howard Taft made a capital address and a very decided impression. His speech was evidently written by himself, and was conservative as well as laudatory of the efforts of medical men to improve the sanitary evils in this country. President Taft is a very broad-minded man, and he is in hearty sympathy with the establishment of a National Department of Health.

It was interesting to hear the roll-call of the various international representatives. Twenty-nine countries sent delegates, and out of the twenty-nine, nineteen of them responded in English while the remainder responded in French, Spanish, or German. The big delegate from Russia, in full regalia, responded to his country's name first in German, then in English. He doubtless was a fluent French scholar, and in addition to that had his native tongue at his command. Many of the other foreign delegates showed their proficiency in languages, and it makes an American who has but one language at his command, feel that he has not embraced his opportunities for wider reading and social intercourse.

The next meeting of the Congress takes place four years hence at Moscow, Russia, and doubtless will attract a very large attendance of sanitarians, tourists, and sightseers.

FUMIGATION UNNECESSARY

The subject of fumigation was taken up by the recent International Congress, and the conclusion was made known that disease is conveyed by contagion, and not by infection, as a rule. Hence the contact must be rather direct, and the particular individual affected must be in more or less direct contact with one who suffers from a communicable disease. There are doubtless some indirect methods of infection through dust and perhaps other vehicles, but the new public health thought is that direct contagion is more important than indirect infection. Dr. Hill has dwelt with much emphasis upon this point in his series of articles on "The New Public Health," now running in THE JOURNAL-LANCET.

This will be a blow to the manufacturers of disinfectants, but the sale will not diminish appreciably while the people have no direct control over the sale and manufacture of these deodorants, which can hardly be called disinfectants. As soon as the standard has been established for disinfectants and deodorants this fallacy will be remedied.

It has been proven by the committees of the Congress that formaldehyde does not act in a form of vapor or gas, but only when water is added to it. Steam and formaldehyde may be, in a measure, disinfectants, but it is very difficult to combine them in proper proportions, in order that they may have a bactericidal action.

Until the people are educated in the prevention of communicable diseases they will continue to use these various means with more or less faith.

REPORTS OF SOCIETIES

THE PARK REGION SOCIETY

The Society met in regular session at Fergus Falls on October 9th. The attendance was fair, and three applications for membership were received.

Papers were rendered as follows: "Thyroid Medication," by Dr. L. A. Davis, Dalton; "Some Thoughts Along Therapeutic Lines," by Dr. J. C. Serkland, Rothsy; "Report of a Case of Carcinoma," by Dr. J. G. Vigen, Fergus Falls.

The paper on thyroid medication brought out a very interesting discussion.

Several matters of local interest were disposed of, among which was the change of meeting-place for the annual meeting from Fergus Falls to Alexandria.

A. MASON RANDALL, M. D., Secretary.

THE UPPER MISSISSIPPI SOCIETY

The Society met at Brainerd on Oct. 8th with twenty members present.

Papers were read as follows: "Personal Experience With the Galvanic Current as a Therapeutic Agent," by Dr. M. E. Withrow, International Falls; "Ectopic Gestation," by Dr. J. A. Thabes, Brainerd; "Prophylaxis of Venereal Diseases," by Dr. M. A. Desmond, Akeley. Dr. W. H. Smith of Cass Lake was elected to membership. A banquet was given the doctors, and the meeting was a successful and profitable one.

The next meeting will be held at Wadena in January.

G. H. LOWTHIAN, M. D., Secretary.

RED RIVER VALLEY SOCIETY.

The Society met at Warren last month, when the following program of addresses and papers was presented:

Dr. H. L. Ulrich, of Minneapolis, "Vaccine Therapy."

Dr. H. L. Taylor, of St. Paul, "Treatment of Tuberculosis."

Dr. J. G. Cross, Minneapolis, "Abdominal Crises Due to Arteriosclerosis."

"Case-Reports," by Dr. G. S. Wattam and W. S. Anderson, of Warren.

A large number of physicians from neighboring towns were present and the meetings to be held during the coming winter are in the hands of a committee who will present interesting programs.

J. F. NORMAN, M. D., Secretary.

STEARNS AND BENTON SOCIETY.

The above Society met at St. Cloud on September 19th, when the following papers were presented and discussed:

"Physiology, Anatomy of Bladder and Prostate Treatment of Bladder and Prostate when Latter Becomes Hypertrophied," Dr. F. R. Wright, Minneapolis, Minn.

"Intestinal Parasites," Dr. A. Kuhlmann, Melrose, Minn.

"The Awakening Interest in Psychotherapy," Dr. Wm. Friesleben, Sauk Rapids, Minn.

Report of State Delegate, Dr. W. L. Beebe, "The meeting of the State Association at Duluth."

A thorough discussion of the subjects followed.

The members and friends of the Society were entertained at a banquet given by Dr. and Mrs. Beaty of St. Cloud, where a thoroughly good time was enjoyed by those who participated.

J. C. Boehm, M. D., Secretary.

MISCELLANY

THE MEETING OF THE A. M. A.

Readers of The Journal-Lancet will not need to be reminded that Minneapolis is to be the meeting-place of the American Medical Association in June, 1913.

To inspect the conveniences of the city, by way of hotel accommodations and the possibilities of the University, where the Association sessions are to be held, and by way of meeting-places, registration headquarters, exhibit-halls, etc., Dr. George H. Simmons, Editor, and Mr. Will C. Braun, business manager, of the *Journal of the A. M. A.*, visited Minneapolis last month. They were delighted with the prospects for the meeting and predicted a large gathering.

All the audience-halls and lecture-rooms of the University buildings will be at the service of the Sections. Daily lunches will be served upon the Campus, so that it will be unnecessary for members to seek their down-town hotels at the noon recess,—a provision which Dr. Simmons especially applauded.

The University Armory will make, in his judgment, an ideal place for registration offices; and the new medical buildings, now in process of equipment, will provide ample and satisfactory quarters for the scientific and commercial exhibits.

The hotels of Minneapolis and St. Paul, which are adequate for the entertainment of the regular membership of the Association, will be reinforced by a number of fraternity houses and, if necessary, by private residences throughout the city.

Arrangements for hotel accommodations are in the hands of a committee of which Dr. S. Marx White is chairman, and members expecting to attend the meeting cannot send in their reservations too soon to suit the committee or to serve their own interests.

Dr. Simmons and Mr. Braun conferred with the chairmen of the various local committees and gave them some valuable suggestions for the conduct of the meeting.

Minneapolis invites the participation of the Northwest in the entertainment of this greatest of American Medical conventions.

The Journal-Lancet will keep the profession of the state in touch with the arrangements for the meeting from time to time.

Richard Olding Beard,
Chairman, Committee on Publicity and Press.

NEWS ITEMS

Dr. G. Roy Ringo, of Minot, N. D., was married last month.

Dr. J. M. McMasters has moved from Sauk Centre to Minneapolis.

Dr. A. A. Heinemann has moved from Philip, S. D., to Wasta, S. D.

Dr. W. T. Caine has moved from Almont, N. D., to Underwood, N. D.

Dr. O. J. Brown, of Little Falls, has gone to New York for post-graduate work.

Dr. T. L. Birnberg has sold his practice at Campbell and gone to Europe for a year's study.

Dr. W. F. Maertz, of New Prague, has become connected with the hospital at Lidgerwood, N. D.

Contracts have been let for some of the work on the new Fairview Hospital in Minneapolis, which is to cost $125,000.

The new North Dakota State Sanitarium at Dunseith, N. D., for the care of tuberculosis patients will open this month.

Dr. Syver Vinje, of Henning, has sold his practice to Dr. Jacob Hoffman. Dr. Vinje has practiced in Henning for over ten years.

Dr. J. P. Kane has given up practice at Delano and is in Minneapolis for post-graduate work. He will later locate elsewhere.

Dr. George W. Nuckolls, a retired physician living in Minneapolis and formerly of Tintah, died last month at the age of 69 years.

The Twin Cities have several fake doctors "out on bail," under charges of obtaining money by fraud and of committing abortions.

Dr. A. J. Kirghis has moved from Sauk Centre to St. Cloud. The business men of Sauk Centre gave Dr. Kirghis a farewell banquet.

The next regular meeting of the State Board of Medical Examiners of South Dakota will be held at Watertown beginning Wednesday, January 8, 1913.

Dr. L. C. Ingram, formerly of Zumbro Falls, and Dr. J. E. Aanes, an Eastern man, have become associated with Drs. Cremer, Claydon & Co., of Red Wing.

Dr. John D. Taylor, of Minot, N. D., died last month at the age of 52 years. Dr. Taylor had practiced in Minot about ten years and had been county coroner for several years.

Dr. Thomas Rolph, the first practicing physician in Fargo, N. D., died recently in California. The Cass County Medical Society passed resolutions in his honor at its last meeting.

Dr. F. W. Burns, of Stewartville, will move to California. The citizens of Stewartville tendered Dr. Burns a banquet last month to express their appreciation of his work in their midst.

Dr. C. J. Ringnell, of Minneapolis, entertained at luncheon the other day three distinguished Swedish surgeons who are visiting the United States. They spoke in high praise of American surgery.

Dr. George H. Knight, who was the first superintendent of the Minnesota School for Feeble-Minded at Faribault, died last month at Lakeville, Conn., where he was the head of a similar institution.

Dr. R. H. Beach, of Dickinson, N. D., has been appointed chief surgeon of the new Northern Pacific Hospital at Glendive, Mont. Dr. Beach was formerly associated with Dr. Courtney, of Brainerd.

Dr. Taliaferro Clark, of the government service, has begun his work, in connection with the Minnesota State Board of Health, of investigation into the causes of tuberculosis and trachoma among the Indians.

Dr. R. M. Phelps, who succeeds Dr. Tomlinson as superintendent of the State Hospital at St. Peter, has begun his work there, and Dr. Tomlinson will now begin his work as superintendent of the new state inebriate hospital at Willmar.

Dr. Alexis Carrell, of the Rockefeller Institute, New York City, received the Nobel prize in medicine this year. Its value is about $40,000. Dr. Carrell's original work has been in the suture of blood-vessels and the transplantation of organs.

Brookings, S. D., is rejoicing over the fact that the city is to have the Deaconess Hospital to be conducted under the auspices of the Methodist Church. The matter was definitely settled last month at the annual conference of the church at Yankton. The hospital will be open about Dec. 1st.

Dr. I. H. Orcutt, of Northfield, died last month at the age of 65 years. Dr. Orcutt began practice in Byron, but retired at the end of seven years. He then began to teach in the agricultural school of South Dakota, and became the State Entomologist. He continued his scientific studies and work until his death.

The Interurban Academy of Medicine, of Duluth and Superior, took a straw vote on the presidential situation at its meeting last month. Lest we be accused of dabbling in politics, with the Academy, we shall give only a skeleton account of the vote. It resulted as follows: 13, 10, 9, 1, —evidently a disagreement of doctors.

The corner-stone of the office building of the Mayo staff at Rochester was laid last month. The building is upon the site of the home of the late Dr. W. W. Mayo. The structure will be a very commodious one and will give ample room for all the departments of the staff, especially providing sufficient room for the conduct of research work.

Dr. A. S. Hamilton, of Minneapolis, has returned from a six months' trip abroad. Dr. Hamilton spent most of his time in London studying mental and nervous diseases. He was the representative of the University of Minnesota at the tricentennial of Trinity College, Dublin, and at the two hundred fiftieth anniversary of Oxford, London.

The Soo Surgical Association held its sixth annual meeting at the Spalding in Duluth on Oct. 10th and 11th. Officers for the current year were elected as follows: President, Dr. Frank S. Wiley, Fond du Lac, Wis.; vice-president, Dr. A. J. McCannel, Minot, N. D.; secretary-treasurer, Dr. John H. Rishmiller, Minneapolis. The next meeting will be held in Milwaukee.

The citizens of Mankato gave Dr. H. A. Tomlinson and family a farewell banquet at Elks' Hall in Mankato on Oct. 7th. Dr. Tomlinson has been connected with the St. Peter State Hospital for twenty-one years, and his work in the hospital and in the medical profession of the Northwest has been highly appreciated. A similar banquet was given Dr. Tomlinson by the citizens of St. Peter.

The Supreme Court of Minnesota has decided that John Till, the plaster doctor, must face trial for damages caused by his treatment. The court rules that—*where one deliberately makes a false representation of a material fact, or as of his own knowledge without knowing whether it is true or false, intending that another shall act upon it, and he does so to his injury, an action for deceit lies.* The words of the court, in italics, are significant.

At the annual meeting of the Minneapolis Academy of Ophthalmology and Oto-Laryngology held at the Town and Country Club between the Twin Cities, the following officers were elected: President, Dr. Frank C. Todd, Minneapolis; first vice-president, Dr. John H. James, Mankato; second vice-president, Dr. Elwyn R. Bray, St. Paul; secretary and treasurer, Dr. Louis Allen Nelson, St. Paul; Council,—Dr. Frank E. Burch, St. Paul; Dr. E. H. Parker, Minneapolis; Dr. Chas. N. Spratt, Minneapolis.

The judges of the Municipal Court of Minneapolis have appointed a commission of physicians from whom they may seek advice in dealing with persons brought before the court when the court suspects that such persons may be mentally irresponsible for their acts. The commission is composed of the following physicians: Dr. W. A. Jones, specialist in nervous diseases; Dr. C. G. Weston, specialist in diseases of women; Dr. F. W. Schlutz, specialist in diseases of children; Dr. H. B. Sweetser, surgeon, and Dr. Eleanor J. Hill.

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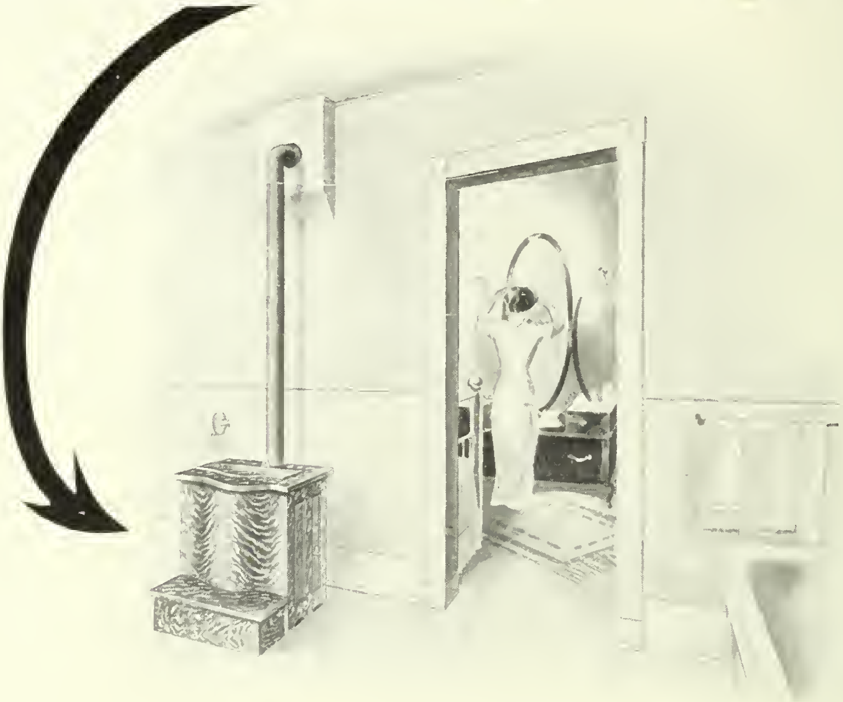

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DISEASES AND SURGERY OF THE PROSTATE GLAND*

By Geo. G. Eitel, M. D.
MINNEAPOLIS

Diseases of the prostate gland are not of great variety, and the main condition which the practitioner is called to treat is that of hypertrophy. This is an affection of advanced life, being very seldom, if ever, encountered in men less than fifty years of age, though hypertrophy due to infection (a totally different condition) may, of course, exist at any age at which prostatitis is possible.

So often is prostatic hypertrophy met with among men past the middle period of life that Sir Benjamin Brodie considered it almost a normal condition under such circumstances; but the statistical investigations of Thompson, Lodge, Dittel, and Guyon have shown that its actual frequency is far less than has been supposed, appreciable enlargement existing in but *one-third* of the cases examined of more than sixty years of age, and only about 16 per cent giving symptoms that would lead the patient to consult a physician. It is exceedingly rare for the disease to begin before the age of fifty or after seventy, although when it has once commenced it generally goes on increasing up to the end of life unless its progress is checked by operative procedure.

Etiology.—Absolutely nothing is known of the cause of this disease except that it is associated with the sexual function. The prostate is never enlarged in those who have lost both testicles. A similar absence of prostatic enlargement is also observed in congenital deficiency of both testicles. It has been shown by the experiments of Griffith and others that a similar relationship exists in dogs and other lower animals. These facts have been made use of in the treatment of the affection, namely, the removal of one or both testicles in subjects suffering from hypertrophy of the prostate; but the results have not proven very satisfactory for the reasons that the operation is never done early enough, and because of the mental disturbance that follows in quite a large percentage of the younger subjects operated on. After a prostate has once become hypertrophied it will take considerable time for it to resume anything like the normal size. In the hypertrophy of the gland, according to more recent investigation, only the middle lobe of the organ is involved. It may project toward the rectum into the bladder or encroach upon the prostatic urethra. As the gland encroaches upon the bladder the prostatic urethra becomes elongated, and a pouch forms behind it from which the urine cannot be expelled. The muscular, glandular, and connective-tissue elements do not equally participate in the enlargement. The enlargement is, as a rule, chiefly at the expense of the connective tissue.

Often small isolated tumors occur in the substance of the organ. They consist of the unstriped muscular tissue and are very similar in appearance and structure to the fibromata found in the breast and uterus. When hypertrophy of the prostate progresses to a point where it produces retention of urine and distention of the bladder, the ureteral valves are opened so as to permit the urine to back up into the ureters and pelvis of the kidneys, and dilatation of these structures will take place and hinder their function, and constitutional symptoms, such as gastro-intestinal disturbance, hiccough, headache, and even coma, are liable to be noticed as a result.

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*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

According to a number of German investigators, only the so-called median lobe is the one that becomes enlarged; the lateral lobes or structures are encroached upon and pushed outwards and reduced in size by pressure. There may be a uniform enlargement of this median lobe encroaching concentrically upon the vesical urethral opening and producing obstruction, or there may be, as it is frequently found, a protrusion or outgrowth from the middle lobe, which may act as a valve cutting off the stream, acting similarly to a stone in the bladder. There may be small nodules which press on the vesical meatus or prostatic urethra and produce more or less complete obstruction. There may also be such an arrangement in these small nodules that they may hold the meatus open and produce incontinence of urine, instead of retention. There is almost an endless variety of pathological conditions which may give symptoms according to their peculiarities, but whichever combination may happen to be present, its symptoms are also liable to vary according to congestion or inflammation that may co-exist.

The symptoms are usually slow in onset. The patient is generally aware that his stream is slower and less forcible than formerly. He passes water more frequently and gets up two or three times during the night to empty his bladder. Later in the progress, after passing all that is possible for him, it is frequently found that there are still from one to six ounces of residual urine. If a catheter is regularly used two or three times in the twenty-four hours, all unfavorable symptoms may disappear and no further treatment for some time may be needed; but it is not in all cases that such favorable results can be obtained, as the distorted prostatic urethra does not in all cases or at all times permit of easy catheterization. Then there is only one alternative, and that is the removal of the enlarged lobe.

Obstruction is the real indication for operative treatment. Complete retention of urine must be promptly overcome, in order to prevent serious harm to the patient. It may not be possible or advisable for the practitioner to do a radical operation when he meets a patient suffering from complete retention of urine, but he can and should empty the bladder somehow. In case he finds it impossible to pass a catheter into the bladder, he should plunge a trocar above the os pubic into the organ. The trocar should, if possible, be large enough to enable a soft rubber or a semiflexible catheter to be inserted through its cannula, and left in place until everything is favorable (the patient's general physical condition especially included) for the removal of the hypertrophied lobe.

In the cases of incontinence, even where there is no residual urine, if the patient wishes to take the chances of being made more comfortable during the remainder of his life, the only recourse will be a radical operation. I say chances, for there are some chances because not every case operated on for the removal of an enlarged or deformed prostate is an absolute functional success.

Operation.—By which route to attack the prostate is largely a matter of choice. Some operators prefer the suprapubic route because it offers better and far more prompt functional results, the function of the bladder being, as a rule, very good as soon as the incision is closed by granulation, which is, on an average, about two weeks. While this method has the advantage mentioned, it also has the disadvantage of a slower and more uncomfortable convalescence on account of the uphill drainage, besides some slight danger of infecting the perivesical fat in which abscesses may form and hinder the recovery in proportion to the extent of the infection.

The perineal operation has the advantage of proper drainage and therefore a much easier convalescence, but, as a rule, not as prompt nor as complete functional recovery. Dribbling of urine for months and even years after the operation is not an uncommon result in the hands of even the best operators. The writer's choice, after considerable experience with both methods, is the suprapubic operation.

Shortly after an operation it is important not to allow the bladder to become distended with urine, as it may be the cause of considerable hemorrhage. Good drainage should be kept up for at least one week in the suprapubic operation.

Acute prostatitis is usually the result of a gonorrheal infection, which infection is very often carried to the prostatic urethra by means of injudicious injections or the meddlesome practice of passing sounds or of massaging or manipulating the genitals. Acute prostatisis is very often mistaken for acute cystitis. It should be borne in mind that cystitis following gonorrheal infection is of very rare occurrence, while prostatitis in varying degrees is quite frequently encountered. The prostate may become so swollen as to produce complete retention of urine. This, of course, would naturally make the practitioner suspicious of a serious complication and would prompt him to at once properly come to the patient's relief. But the cases where the patient is passing very frequently small quantities of urine is where the inexperienced doctor or the too busy practitioner is more liable to be mistaken until a great deal of harm may have been produced. The leading symptoms which are plain enough and should not be mistaken are as follows: generally a very restless condition of the patient, bearing down pain in the perineum, which is increased on defecation, and vesical tenesmus or frequent micturition. Treatment should be rest in bed, hot sitz baths, the use of the catheter if the bladder becomes distended, failing in this, which should not be, even suprapubic puncture with a large trocar and introducing through the cannula a soft-rubber catheter, which may be kept in place as long as may be necessary. Abscesses may form in the prostate and are liable to break into the urethra. They point to the perineum, and rarely in the direction of the rectum. They should be opened early enough before doing harm, and producing unnecessary suffering. After an infection of the prostate has existed subsequent inflammation, and more especially congestion, is liable to occur on account of the disturbance wrought in the circulatory system of the organ. It is quite common therefore for such patients to notice and complain of a fullness and heaviness in the prostate and perineum after sitting on damp, cold ground or a cold stone.

Carcinoma of the prostate gland is very common after the age of 60 years, but very seldom encountered before 40 years of age. At times it is quite difficult to make a diagnosis before cutting on to the prostate. Pain is not always present, especially early in the course of the disease.

In my judgment, obstruction to the flow of urine should be the only indication for operation. The perineal operation should be made and as much of the gland removed as possible, a drainage tube inserted, and the patient made as comfortable as possible. Should the suprapubic operation be made and a carcinomatous prostate found, after sufficient quantity of the gland has been removed a large, soft catheter should be inserted through the penis or through a puncture in the perineum and the suprapubic incision closed. In case of considerable hemorrhage a small drainage-tube may also be placed in the upper incision for a few days, after which the incision may be permitted to close.

Sarcoma of the prostate is now and then met with and just about as frequently in the young as in the aged.

Tuberculosis is also seen at different ages and is commonly associated with tuberculosis in other parts of the body, especially of the testes and kidneys.

Calculi of the prostate are rarely seen. They are liable to follow an injury of the prostate where wounds communicating with the bladder occur.

FOR DISCUSSION SEE PAGE 592

THE TECHNIC OF THE OPERATION OF SUPRAPUBIC PROSTATECTOMY

WITH A VIEW TO REDUCING THE LENGTH OF CONVALESCENCE AND INSURING A GOOD FUNCTIONAL RESULT*

By E. S. Judd, M. D.
Surgeon to St. Mary's Hospital, Mayo Clinic
ROCHESTER

Until within the past few years the perineal operation for removal of the hypertrophied prostate was the operation of choice in this country. As advocates of this method we have argued, first, that the mortality was less and, second, that the time of convalescence was shorter, since the perineal wound healed much more quickly than the suprapubic. Studying the cases more carefully, however, we have found that the mortality is not directly a result of the operation, but that it depends upon the functional capacity of the kidneys and the condition of the heart and general circulation, and that it is the same with either operation. We have been able greatly to reduce the mortality by proper preparation of the patient before operating.

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*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

The functional result as regards the ability of the patient to empty the bladder and, far more important, his ability absolutely to control the flow of urine, is the most important factor in the treatment of these cases. In the perineal operation this result is attained in a large percentage of the cases, but it is quite impossible to determine which of these cases will have poor control or which will have complete incontinence. In none of our cases following the suprapubic operation has there been any difficulty absolutely to control the stream, and in practically all of them the bladder can be emptied completely. The chief disadvantage in the suprapubic method is the length of time required for the urinary fistula to heal, due to infection in this poorly resisting suprapubic space. It has not been uncommon to see these cases drain for weeks or even months, or to see a case terminate badly on account of extensive infection. We have felt that in every other respect the suprapubic operation was to be preferred, and within the past year and one-half we have operated almost entirely by the suprapubic route. By changing some of the minor points in the technic of the operation, we have endeavored to remove the gland with as little chance as possible of infecting the suprapubic tissues. After the gland is removed, the incision in the bladder is drained or closed in such a way that the tissues will not become infected.

The greater number of these patients are under observation for some time before being operated upon. During this time the bladder is kept free from residual urine, and any existing cystitis is cleared up as well as possible. As a routine procedure the patients, when first examined, are put on urotropin in ordinary doses. The bladder is irrigated from one to three times a day with boric acid solution or weak nitrate of silver if the cystitis be severe.

Technic.—The abdominal incision is made in the usual way, the recti muscles being separated. It is much better to make a large incision than to try to work in a crowded space. The fat in the suprapubic space is dissected off from the fundus of the bladder and the peritoneum pushed back. It is very essential that the peritoneum be stripped well back and that the bladder be lifted up as far out of the abdominal incision as possible. We have not found it advantageous to fill the bladder with air or water, or to open it upon a sound. We prefer to have the bladder empty. Ordinarily, we do not open the peritoneum, but try to strip it back from the bladder. Occasionally, however, the peritoneum will be opened accidentally. This may occur in separating it from the bladder or it may be done by pressure used in shelling out a low-lying gland. We were extremely fearful the first few times this accident occurred, but we have now opened the peritoneum in seven cases, each time closing the opening with catgut as soon as it was discovered. In none of these cases did it make the slightest difference in the convalescence.

With the fundus of the bladder lifted well into the abdominal incision, the abdominal wound is packed off with gauze, and the bladder, which a few minutes before has been cleaned as thoroughly as possible, is now opened by free incision, usually about two inches. As soon as this opening has been made, a supporting suture is passed through either angle of the incision in the bladder and the organ dried by sponging out any accumulated urine or water used in cleansing. It is well at this stage of the operation to examine the bladder for stone or other lesions. This is especially important if it has not been possible to introduce the cystoscope, or if there was so much bleeding that a satisfactory cystoscopic examination was impossible.

The removal of the gland from its capsule is best accomplished by the Freyer method. With gloved fingers of the right hand in the rectum, the gland can be pushed well up into the bladder. The first and, if necessary, the second fingers of the left hand are introduced into the bladder. We prefer to start the shelling of the gland by breaking into the prostatic capsule with the bare finger rather than by using an instrument to cut into the capsule. In some instances, especially where a catheter has been used for a great many years, the mucous membrane of the prostatic urethra may have become so toughened that it will be necessary to start the enucleation by cutting through this, since to break through would make too much traumatism. Ordinarily, pushing the finger into the prostatic urethra very quickly breaks into the capsule. Oftentimes, on either side of the prostatic urethra, the hypertrophy rounds into the urethra, and this makes a convenient place to start the enucleation. If necessary, the entire prostatic urethra may be removed. It will re-form quickly, and, according to Freyer, there is no danger of the formation of stricture. On a number of occasions we have removed the entire prostatic urethra. It is customary, however, to start shelling the gland at one lateral aspect of the urethra and to terminate at a point about opposite. This saves a strip of mucous membrane of the prostatic urethra running along the dorsum between the bladder and the membranous urethra, and insures against any possible stricture formation. This would seem to be a saving in time for a re-establishment of the entire prostatic urethra. The enucleation should include the entire prostate gland with the possible exception of the small piece lying in front of the prostatic urethra.

For several reasons it is most important that the entire gland be removed, and the fact that the entire gland can be removed by this method is probably one of the best arguments in favor of the suprapubic over the perineal route. The prostate is entirely surrounded by the fibromuscular capsule. When the gland has been completely enucleated, the capsule contracts quickly, and the hemorrhage stops in a very short time. If, however, a piece of the gland be left in the capsule, it acts the way a piece of retained placenta acts, i. e., it interferes with the contraction of the capsule and thus keeps up the bleeding. The hemorrhages in these cases have been a source of anxiety to surgeons, and many devices have been shown to control them. At the present time, however, we feel sure that, if enucleation be done within the capsule and the prostate entirely removed, there will be very few cases in which it will be necessary to use even a gauze pack to stop the bleeding. Sharp hemorrhage is caused by getting outside the capsule into large vessels, or by leaving a piece of the prostate in the capsule. If the gland be entirely removed, the capsule will contract and the chief bleeding will be the oozing from the mucous-membrane edge in the urethra and bladder.

In the last 69 operations which we have performed by this method, we have not had to use the pack, and in none have the patients suffered from loss of blood. As soon as the gland has been shelled free from its capsule, and the urethra has been torn off, the catheter, which was introduced into the urethra before the operation was started, is now passed into the prostatic capsule and irrigation commenced. This irrigation must be commenced as soon as the gland is shelled out in order to prevent the accumulated blood from clotting or to wash out the clots which have accumulated in the bladder. The anesthesia may be stopped as soon as the gland is out. The first appearance of clots and blood may give the impression that a sharp hemorrhage is about to occur, but if the irrigation be continued a few minutes it clears up quickly and from then on the bleeding will amount to little or nothing. Free irrigation is kept up for several minutes, washing through and through the bladder. The bladder is continuously supported as far out of the wound as possible by the sutures in the two angles. As the irrigation is continued, interrupted sutures of catgut are placed in the incision into the bladder until the wound is closed. Just before placing the last suture the finger is introduced into the bladder to make sure that there are no clots. If the oozing has continued to any extent throughout the time of closing the bladder so that there may be difficulty in keeping the clots out of the urethral catheter, a small tube is introduced into the bladder at the highest point in the incision, and the irrigation is made continuous, passing through the catheter and out of the suprapubic tube. This tube should be accurately sutured into the bladder in the same manner that the tube is sutured into the gall-bladder, which will prevent leakage around the tube. As soon as the patient is put in bed, a constant irrigation is started and kept up until the cleansing water is clear. This will ordinarily be about twenty-four hours, sometimes forty-eight. The tube is then removed from the bladder, and in many of the cases there will be little or no drainage from the wound afterward.

The bladder is washed frequently through the urethral catheter, which is left in place until the wound above has been closed for several days. If, by the time the sutures have been placed in the bladder, the cleansing water is returning through the urethral catheter without difficulty due to clots, the wound in the bladder is closed completely and a small tube introduced down to the bladder to drain the suprapubic space. If the bladder be completely closed, it is necessary to have either a 2A catheter for constant irrigation, or to have a nurse syringe out the bladder every few minutes until all signs of oozing have stopped. We have had some difficulty from clots during the first few hours following operation, though usually frequent irrigation and the use of alum water will stop the oozing, so that at the end of twelve hours from the time of the operation it will be necessary to syringe out the bladder only about once every hour. If the cleansing water returns clear, usually in twenty-four or forty-eight hours, this catheter is removed, and a clean, sterile one reintroduced. It may require some adjusting to get the catheter in the proper position in the bladder so there will be no spasms. However, the great majority of the cases are entirely comfortable with the catheter in place. The catheter should be changed frequently, though one should be kept in the urethra until the suprapubic wound has been entirely healed for several days. This will usually be from two to three weeks.

Two or three silk-worm sutures are placed in the abdominal wound, including the recti muscles. This wound is not closed completely. But few of these wounds heal by absolute primary intention. There will be a little serum drainage and, in some cases, urinary leakage for two or three weeks, and we have had a few cases in which the suprapubic space became infected in much the same way we used to see after the old method of packing the wound with gauze.

In the 69 cases operated upon by the suprapubic route, two were quite extensively infected. Rather a small percentage of them healed without having had some urinary leakage through the wound, though most of the wounds have entirely healed and the patients were able to go home within three weeks. The patients have been much more comfortable during the period of convalescence, have not had to contend with the urine-soaked dressing, nor have they had the run of temperature and the "sick" appearance, due to absorption from infection in this space, that accompanied the old method. While the patients have required considerable care during the first twenty-four hours after the operation, after that time they are much easier to care for, requiring very little dressing.

While we have had some mortality in this series of cases, it could not in any way be attributed to the technic of the operation and would have occurred no matter what operation was done. If the patient be a bad risk, especially if he has a cardiac complication, it will be best to introduce the suprapubic tube into the bladder for the first twenty-four hours.

If the bladder has been completely sutured, any clotting in the urethral catheter may cause considerable suffering. In this series of 69 cases we have completely closed the bladder in 59 and used the suprapubic drain in 10.

DISCUSSION OF THE TWO PRECEDING PAPERS

Dr. John Butler (Minneapolis): Recently there has been considerable difference of opinion as to what has been removed and what has been left behind after so-called prostatectomy. Drs. Freyer and Thompson Walker are of the opinon that the whole gland is removed *in toto*, whereas Zuckerkandl, Tandler, Sturck, and others seem to agree that only the median lobe of the prostate is hypertrophied, that the prostatic tissue lying anterior to the ductus deferens makes up what is known as the median lobe of the prostate and that this is the only part of the prostate which is hypertrophied. All prostatic tissue lying posterior to the ductus deferens is not involved and does not share in the hypertrophy, but the anterior and posterior lobes, through pressure of the hypertrophied median lobe, become atrophied and form the so-called capsule of the prostate gland. The muscular fibers in those lobes are preserved though much reduced by the pressure of the hypertrophied portion and always remain after a typical prostatectomy.

Thus, a so-called prostatectomy is simply an intraglandular enucleation of the median lobe of the prostate gland.

Dr. John E. Engstad (Minneapolis): Dr. Judd is right when he states that the great danger from ordinary drainage is sloughing, which he avoids by using the combined drainage. I have used suture drainage in two cases, and I believe it is an improvement on the ordinary drainage. It prevents air from entering the bladder. This system of drainage was perfected by a practitioner in Naples, who now resides in New York city.

Dr. F. J. Plondke (St. Paul): I agree with Dr. Judd when he states that the mortality-rate is not due to the operation *per se*. As hypertrophy of the prostate is essentially a condition of advanced life, it is usually associated with a general arteriosclerosis and resultant renal cardiac and pulmonary complications. In doing these operations, therefore, whatever method is employed, the time element must be considered, that is to say, the operation must be finished in the shortest possible time,. with the smallest possible amount of anesthetic. These cases are all poor subjects for prolonged anesthesia, and some, on account of the debilitated condition, with severe complication, are unable to withstand the effect of a general anesthetic. In these cases I have obtained very satisfactory results from the intraspinal use of stovaine.

Dr. Judd has called our attention to the preparatory treatment. This, I think, is of as much, or more, importance than the operation itself. We are too ready to operate as soon as the case presents itself, and this is especially true with the younger men. In order to get the case in the very best condition it sometimes requires weeks, or even months.

In addition to the treatment outlined by Dr. Judd, I follow the boric-acid irrigation with one-half ounce of 5 per cent argyrol solution, allowing it to remain in the bladder. This sterilizes the residual urine, and as the amount increases brings it in contact with all parts of the bladder-wall. On account of more extensive experience and good results with the perineal operation. I prefer it to the suprapubic. I am willing to admit, however, that, in certain cases, notably where the so-called middle lobe projects far into the bladder, the suprapubic operation is preferable. I think also that there is less danger of incontinence later, although in about twenty-five cases operated on by the perineal route there has been no trouble on this account.

Dr. F. R. Wright (Minneapolis): One word regarding the mortality of prostatectomy: The mortality of prostatectomy is only a relative term. One man is dealing with patients who are very much advanced in years, say, over seventy-five years of age, and will, as a consequence, get a higher mortality than the surgeon who operates on a younger class of patients. The mortality in one case will be approximately 20 per cent, while in the other it may not be more than 6 per cent, depending very largely upon the ages of the patients.

Again, the anesthetic has everything to do with the mortality. When I was in Vienna, six years ago, I saw Zuckerkandl do his 72d consecutive prostatectomy with spinal anesthesia without a death, and as he finished operating he said to me: "I believe there is no mortality from perineal prostatectomy, but if there is that mortality is due to the anesthetic itself." It is a dangerous procedure to give a man over seventy years of age an anesthetic for any length of time, even if you do not operate on him, particularly one whose general health has been damaged by lack of elimination or kidney insufficiency.

Another point is the condition of the patient, which has everything to do with the mortality. Preliminary treatment in cases of prostatectomy should consist in being certain that the kidneys are able to do the work of eliminating the waste material that should be eliminated in the urine. It is not right to operate on every man who has an enlarged prostate and who holds still, because the mortality of prostatectomy is greatly reduced by not operating on him until the time that the judicious use of a catheter has proven that the kidneys are able to eliminate a proper amount of waste material.

Dr. J. W. Andrews (Mankato): I want to add my testimony to the advantage of suprapubic prostatectomy. We are very likely to follow the leading of our teachers, and it is right we should do so. When this operation was introduced by the profession, such men as John B. Murphy, of Chicago, and J. E. Moore, of Minneapolis, and others, were advocating the perineal route as the only wise route. The pendulum has swung the other way, and very wisely so.

I have not performed nearly so many operations as the readers of these papers, but for a general practitioner I have performed a large number of prostatectomies. For a number of years I used the perineal operation entirely. My patients usually got well, but I think that one-third of them would come back to me complaining of having to get up at night to pass urine, and complaining of frequent urination during the day. I finally undertook the suprapubic operation, and of all patients so operated on not a single one has urinary trouble occurring after the operation.

The difficulty with the suprapubic operation is not in the drainage for the first few days, because I have had no trouble in securing drainage for that time, but there comes a time in the operation when the drainage is removed from the bladder. I understood Dr. Judd to say that in some cases they do not drain at all. When the tubes are taken out from the bladder then comes the difficulty; the urine runs over the wound, and, although it has commenced to granulate, it hinders the process of granulation and the process of healing very materially. I have tried to remedy that by perineal drainage. I make an opening simply large enough to drain, but for some reason the urine does not run that way after all. That has been my experience. Theoretically it ought to do so, but practically it does not.

Dr. Arthur C. Strachauer (Minneapolis): The mortality following prostatectomy is due to shock, pneumonia, and renal insufficiency. This latter is the greatest factor. Every case of advanced prostatic hypertrophy with marked cystitis should have the kidney function ascertained, as by chromo-ureteroscopy. If indigo-carmine, following its intragluteal injection, be retarded in its appearance at the ureteral os to thirty minutes, the renal impairment is of such advanced degree as to contra-indicate a prostatectomy for the time being. These cases should be irrigated through a catheter, or drained suprapubically and given thorough preparation before operating. Their intoxication should be flushed out by the drinking of large quantities of water.

To guard against pneumonia, the patient should, as soon as possible, be put in the upright position. These old men should be sitting up on the day following their operation. They must not be allowed to lie in the recumbent position too long, thus permitting hypostatic congestion and its subsequent evils to develop.

The suprapubic route is gaining favor very rapidly over the perineal and is the route of choice, but one should endeavor to select the operation which is most suitable to the particular case in hand. The decision should be based upon the cystoscopic findings. If the prostatic hypertrophy does not project up into the bladder, but has developed down along the rectum, as in the adenomatous type, the perineal operation has advantages over the suprapubic. In such a case the prostate is more easily removed from below, less trauma is inflicted, and better drainage is established by the perineal route.

Dr. Judd (closing): In reference to the statement made by Dr. Butler that hypertrophy is confined to the median lobe: I am very much of Dr. Butler's opinion regarding the pathology, except the possible question in our minds as to whether it may not be a neoplasm instead of hypertrophy.

As regards the mortality of the operation: Surgeons feel very much the same in this matter, namely, that the mortality is not due to the operation *per se*, but largely to the condition of the individual, and, as one of the speakers remarked, a surgeon's mortality must be regulated by the condition and age of the patients operated upon. The low mortality is not necessarily due to the technic of the operation, for surgeons operating upon very old men simply take chances that others would not take.

The preparation of the patient before operation is by far the most important part of the whole subject. It sometimes takes three or four months to prepare a patient for enucleation of the prostate. In this way you convert him from a bad risk into a favorable one for operation. The bladder should be cleansed by introducing a soft catheter into the bladder or a preliminary suprapubic drain should be used for the purpose of frequent irrigation. Not only are the infections drained by these measures, but the individual is relieved of the residual urine. The patient may have been carrying from ten to fifteen ounces of residual urine, and if this urine be removed and the bladder kept empty the pressure on the kidneys is changed, and acute congestion of the kidney may follow. The residual urine should be withdrawn gradually, and the patient's condition watched closely while the change is being made.

SOME OF THE MORE IMPORTANT FACTORS IN INTESTINAL PHYSIOLOGY AND BACTERIOLOGY*

By E. P. Quain, M. D.

BISMARCK, N. D.

Under the peritoneum of the small intestine lies the longitudinal muscle layer. Closely attached to the inner surface of this is the more delicate circular layer. The muscularis mucosæ is a network of muscle fibers marking the boundary between the submucous areolar tissue and the mucous membrane. The nerve plexus of Auerbach ramifies between the longitudinal and the circular layers and sends fibers into the submucosa to form the plexus of Meissner, from which filaments extend to the various elements of the mucous membrane. That there is another, intrinsic, and, as yet, imperfectly understood innervation of the intestine is strongly suggested by the fact that peristalsis may take place in a segment from which the mesentery has been severed. The lumen of the mucous membrane is much longer than the muscle cylinder. This excess is disposed of in folds—valvulæ conniventes—which increase greatly the absorptive surface of the intestine.

The villi are closely set projections which cover the entire mucous membrane of the intestine. Their number is estimated at ten million. Each villus is about two-thirds of a millimeter in length and is covered with a single layer of columnar epithelium. The center of the villus contains a lymph-radicle connecting with the lymphatics in the submucosa. It also contains blood capillaries and muscle fibers, the latter connecting with the muscularis mucosæ. Contraction and relaxation of these muscle tissues cause an expulsion from and a suction into the lymph and blood spaces, a very feeble pump-action, but of importance in absorption. The villi are concerned almost exclusively with absorption.

Between the villi are the crypts of Lieberkühn. They are straight ducts, dipping into the mucosa for one-half millimeter in the adult, and to the number of about thirty million. In the duodenum are found a few deeper and convoluted glands—those of Brunner. From these two glands is secreted the intestinal juice, the succus entericus. Its volume in an adult amounts to about 1,500 c. c. in twenty-four hours. The crypts of Lieberkühn supply more digestive agents than any other source of digestive secretion. The succus entericus contains, among other things:

1. Erepsin, a proteolytic ferment, which splits up peptones into still more elementary bodies, chiefly amino-acids.
2. Enterokinase, a discovery of Pawlow, which changes certain zymogens, especially trypsinogen, into active ferments.
3. Lactase, which cleaves milk sugar into dextrose and galactose.
4. Maltase, which changes maltose into dextrose.
5. Invertin, splitting cane sugar into dextrose and levulose.
6. A bactericidal body which is undoubtedly also a ferment. It is thought that this ferment causes the absorption of the protoplasm from the bacteria, for it is well known that the dead bacteria in the feces are simple composed of the stroma, or skeletons, of the former bacteria. (Strasburger.)
7. Sodium bicarbonate, which helps to neutralize the acids of fermentation and to emulsify fats. The sodium bicarbonate cleaves into NaCl and CO_2, and this gas is supposed to give up its oxygen in such an explosive manner as to burst open molecular food particles and give the digestive juices a better chance. Fleiner says this gas does in the intestine what the teeth failed to do in the mouth.

The exact manner in which the intestinal mucous membrane absorbs the various food products is as yet unexplained. But everything points to this, that the columnar cells of the villi have, in some instances at least, the ability to take up the chemically simplified food elements and to build these elements up synthetically into the complex compounds taken up by the lacteals and capillaries. Thus emulsified fats, that is, fatty acids, glycerine, and soap, are absorbed; but some droplets of fat have been seen to reform in the center of the mucous membrane cell, although not present at the periphery of the cell, and pass on into the lacteal. (Howell.) That peptones and albumoses are taken up by these cells and worked over into albumin as formerly thought, is probably not true. The discovery of the proteolytic ferment erepsin, which continues the work of pepsin and trypsin in changing peptones and perhaps albumoses into the amino-acids, which are found in the blood, has made this point clearer.

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*Read before the Sixth District Medical Society at Bismarck, N. D., June 11, 1912.

The jejunum and upper ileum are chiefly concerned in the absorption of the proteid foods, while the carbohydrates are disposed of nearer the ileocecal valve.

The propulsion of the intestinal contents is due to peristalsis, or the muscular activity of the intestinal wall. In the small intestine, this is a continuous process as long as anything foreign exists in the intestine. By "foreign" is meant any substance besides the normal gastro-intestinal juices. Cannon described a "rhythmic segmentation" of the intestine containing food. He saw the circular fibers contract in a series of rings dividing the intestinal contents into small segments. After a few moments these rings would relax and another series of ring contractions followed which redivided each food mass in two and united the two neighboring halves into a new bolus. This evidently mixes the food and the intestinal juices and gives the villi a much closer opportunity for absorption. The true peristaltic wave is two-fold. It begins with a "rocking" of a long segment of bowel, and ends with a series of short waves, which are preceded and followed by zones of contraction. According to Cohnheim, the muscularis mucosæ has a function of protecting the intestinal wall against sharp objects. In numerous experiments he found the sharp point of a pin, for instance, caught by a contracting area of the muscularis mucosæ and held firmly until the pin was turned about so that it could pass on without pricking into the intestinal wall.

All of these processes and many others are constantly and unconsciously at work in the delicate task of tearing asunder the food and putting together the cell nutriment of our bodies.

The large bowel differs from the small both anatomically and physiologically. We find the longitudinal muscle fibers collected into three bands, or teniæ, one on the mesenteric side, one giving off the omentum, and one free. The circular fibers are also collected into bands, or haustra, between which the bowel-wall becomes sacculated. The glands of Lieberkühn are longer than in the small intestine, and the villi and valvulæ conniventes are absent. The cecum, the ascending colon, and half of the transverse colon have their nerve supply from the superior mesenteric plexus, a branch of the celiac plexus. The rest of the colon is supplied by the inferior mesenteric or aortic plexus.

Physiologically, the large bowel is chiefly concerned in the absorption of water, the absorption of proteids, carbohydrates, and fat being so slight as to be practically negligible. This being true, the benefit derived from rectal feeding may reasonably be questioned. It is fairly well established that peptones are not absorbed from the intestines. The peptonized proteids which compose the main part of nutrient enemata, therefore, must be acted upon by erepsin or trypsin before they can be absorbed. Does this really occur? The observations of Langdon-Brown, Thomas, and others tend to show that it does not occur. According to these investigators, the urea and nitrogen output in the urine from patients "fed" *per rectum* corresponds to that of patients receiving no nourishment. In two patients with fistulæ of the thoracic duct, only traces of the fats given *per rectum* were found in the fistulæ. If an individual be given a sufficient amount of water, life will be sustained for three to five weeks without food. Without food and water, death comes in eight to ten days. All this evidence would indicate that our time-honored "rectal feeding" may have been a grand illusion, and that we might have done practically as well by our gastric ulcer patients if we had given only tap water instead of peptonized milk in the "nutrient" enemata.

In the first half of the large bowel there is present an antiperistaltic action which tends to retain the contents in the cecum and ascending colon until the water is absorbed and the feces formed. The peristalsis proper also differs from that of the small intestine. After the feces are formed in the upper segments of the colon there is a sudden forcible peristaltic action which forces the mass rapidly over the splenic flexure into the sigmoid and rectum. This wave lasts but for a few seconds, after which the colon may rest for hours. An internal secretion, or hormone, which originates in the gastric mucosa, has been shown to stimulate peristalsis of the colon. The extent to which this normally supplements extrinsic nerve stimulation is not yet determined.

We have stated that different segments of the intestine have different digestive and absorptive functions normally. While this is true, it is also true that the various parts of the small intestine may be made to functionate in a vicarious manner; and Stassow has proved by experiments on dogs that even the large bowel may be educated to substitute functionally for an excised segment of the jejunum. But the removal of a section of the bowel induces such an abnormal, or pathological, condition that it is scarcely to be considered in normal physiology. Neither have we any reason to assume that this possibility would come into play for the absorption of nutrient enemata, while the small intestine is intact.

Of equally great interest to practical medicine and surgery is the relation between the extrinsic nervous mechanism and the functions of the intestine. Exner demonstrated that stimulation of the celiac plexus causes a spastic intestinal peristalsis. Syers showed that atrophy, or any degeneration of the celiac plexus caused by tumors or other destructive agency, was always associated with chronic diffuse dilation of the stomach and intestines. Jacobi, among others, proved that stimulation of the suprarenal bodies caused stimulation of the celiac plexus, which, in turn, resulted in a spastic stenosis of the intestine. In line with these findings, Brosch reported several cases found in autopsy with the first part of the colon unusually dilated, atrophied, and covered with abnormal membranes, in which the suprarenal bodies were cystic, fatty, or otherwise diseased. These questions present a fertile field for anyone who wishes to cultivate the solution of the coloptosis and pericolic membrane problems.

At birth the intestinal tract is free from bacteria; but, after a short time, the ileocecal region becomes the permanent habitat for a great variety of bacteria. Theoretically, the animal organism would be better off if the intestine could be kept in the purity of infancy. Practically, this is impossible, and in the course of time our intestine has learned to keep the bacteria in reasonable check.

Nuttal removed guinea-pigs aseptically by Cæsarian section and kept them on sterile food and in sterile surroundings. The pigs thrived perfectly. Mammals in the extreme arctic regions have a practically sterile intestinal tract. On the other hand, Schottelius hatched chickens aseptically and found that they starved until they were given fecal bacteria from other chickens.

What cannot be avoided must be endured. With a healthy intestinal mucosa, the bacteria do no harm. The question of food economy lies also to some extent in our hands. The more food we ingest, the more unabsorbed food goes into the cecum, and the more bacteria must we feed.

The number of fecal bacteria is enormous. Their dead bodies compose over one-third the weight of the feces. Their varieties are also too great to be determined. Matzuschita, after great labor, isolated forty-four different types. The cecum and the proximal part of the colon are the constant habitat of these micro-organisms.

When the small intestine is empty it contains very few fecal bacteria. The ileum has been found practically sterile six hours after a meal. This is due to the autosterilization of the small intestine chiefly, and the rapid stream toward the cecum aids the cleansing process mechanically. That gastric, hepatic, or pancreatic secretion has anything to do with this bactericidal process is doubtful, for bacteria attack readily either of these fluids experimentally, and, besides, they are largely precipitated and destroyed in the upper part of the intestine. The incidental swallowing of bacteria with the food plays an insignificant rôle in digestion. They are unaccustomed to the new and strenuous environment, and their protoplasm yields early to proteolytic ferments.

Kendall, among others, has shown quite conclusively that there are two varieties, or classes, of fecal bacteria which have more to do with our ordinary intestinal conditions than all other bacteria together. They are the bacteria of fermentation and the bacteria of putrefaction. Fermentation means the bacterial decomposition of carbohydrates into alcohols and organic acids, chiefly lactic and acetic. Putrefaction is a more complicated series of chemical changes, which are caused by the putrefactive bacteria in proteid substances. The following are some of the end-products of putrefaction: peptones, proteoses, ammonia, indol, skatol, phenol, phenylacetic acid, carbon dioxide, hydrogen, marsh gas, hydrogen sulphide, etc. Many of these are expelled *per anum*, while others are absorbed and reach the urine. (Howell.) All proteid substances, including the intestinal ferments, on entering the colon, are promptly attacked and destroyed by the putrefactive bacteria.

Depending upon the diet, one or the other of these two types of bacteria predominates, and the end-reactions of digestion are modified accordingly. The breast-fed baby has a fecal flora of the fermentative type. Whenever this is reversed, "gas on the stomach" and "colic" ensue. When carbohydrates and proteids both exist in the presence of both these types of bacteria, the fermentative type does its work first and the putrefactive later. The fermentative bacteria interfere with the activity of the putrefactive. If, therefore, the diet causes carbohydrates to be slightly in excess over the proteids in the colon, there will be less gas formation and less putrid stools than if the reverse be true.

The fermentative bacteria are less pathogenic than the putrefactive. If a perforation of the bowel occurs, the violence of the inflammatory reaction will depend to a great degree on which variety of these bacteria escapes into the tissues. The putrefactive bacteria cause most of the symptoms associated with the vague and erroneous diagnosis of "intestinal fermentation." Any unguarded particle of albuminous substance, whether large or small, to which these bacteria gain access, will putrefy. That putrefaction does not ordinarily go on to a dangerous degree in our intestines, is due partly to the bactericidal property of the intestinal juice, but chiefly to the inhibiting effect of other bacteria.

The bacillus of lactic acid is an important enemy of putrefactive bacteria. Lactic acid is a more efficient intestinal antiseptic than either salol or calomel. It deserves much greater therapeutic respect than it is now receiving.

The bacillus coli communis has had many crimes charged up to it. Among other things, diabetes, arteriosclerosis, arthritis, endocarditis, eczema, leucorrhea, pernicious anemia, nephritis, choroiditis, old age, and death are supposed to be caused by this bacterium, and the proofs for these arguments are many. In an article entitled "The Colon Bacillus, a Regulator of Population," Robert T. Morris ranks this bacillus with the one of tuberculosis in causing human degeneration and preventing overpopulation. He tried to show especially how the colon bacillus causes the majority of our abdominal affections, and charges arteriosclerosis to the same account. Even sterility in women, he thinks, is often due to a colon bacillus endometritis or vaginitis, causing a reaction too acid for the spermatozöon to withstand. He thinks this micro-organism the "original malefactor" in the various disorders he enumerates, and urges the profession to begin to look for it systematically.

On the other hand, there are those who argue, and to my mind more logically, that the bacillus coli communis is one of our most valuable personal assets. It has been shown to be an inveterate enemy of those bacteria most concerned in putrefaction. Any new or "foreign" bacterium introduced into the intestine has to encounter the activity of the bacillus coli communis and make peace in the matter of reaction, food supply, toxins, etc., or it will promptly die. And the colon bacilli always normally dominate the field, for ninety per cent of the bacteria in the large bowel belong to this class. Should the bacillus coli communis army lose its strength, numerically or potentially, what would be the bacterial result? The putrefactive bacteria would at once, theoretically at least, exert their presence and activity. Unhampered, they would destroy more and more of the proteid foods and surroundings. The damage caused by their toxins to the mucosa and to the organism as a whole, we are as yet unable to estimate. Even Morris admits that intestinal putrefaction is a forerunner in many cases of arteriosclerosis. Reasoning along this line, it would seem that a decrease in the activity of the colon bacillus must invite the more poisonous bacteria to proliferate and injure the intestinal walls. After this weakened resistance, it is possible that the bacillus coli communis, and other bacteria, leisurely find their way to distant organs and tissues. Do we blame the cattle for walking through a broken-down fence and feeding on our meadows? Do we not more justly carry spite against the agent or force which broke down the fence?

A final thought: Is it not possible that many instances of so-called "lowered resistance" of an individual may really mean that the usual intestinal bacterial defences have been temporarily defeated?

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THE USE OF SALVARSAN*

By Franklin R. Wright, M. D.
MINNEAPOLIS

Mercury and iodide of potash have long been the standard drugs used in the treatment of syphilis. By their use we have been able to control the disease in a majority, and to bring about a cure in a large percentage, of cases. By control is meant that we are able to remove all the clinical symptoms, as they appear in the various relapses in the course of the disease, before they have done permanent damage to any of the vital organs; and by cure is meant that negative Wassermann reaction is found several years after treatment has been stopped. This occurs in 40 per cent of the cases, that is, the blood of 40 per cent of the cases examined a number of years after reasonable treatment gives negative Wassermann reaction.

Clinicians have recognized the shortcomings of this treatment, and have sought diligently, but in vain, for some remedy which would replace, or make up the deficiency of, the mercury and iodide of potash treatment. Arsenic was one of the drugs tried, and while it exerted a beneficial effect upon the disease, it was found to be so poisonous that the dose in which it could be given was too small to be of value.

When Professor Ehrlich announced that he had discovered a compound of arsenic which could be administered in a dose large enough to cure syphilis, medical men received his statement somewhat differently.

One group of men went to work to corroborate his work, and soon reported cures or miraculous improvement in cases where mercury and iodide had failed. They reported some cases cured by a single injection, and others where the symptoms disappeared after one dose, but relapses occurred later. They reported few or no bad effects following the use of this new preparation, grew very enthusiastic, and recommended its use in any and all cases of syphilis.

The second group began to use Salvarsan for the purpose of disproving Professor Ehrlich's statements. They reported the same beneficial effects, but also reported all manner of complications following its use, particularly the development of symptoms in the nervous system coming on some months after the injection. This group of men have been very outspoken in their disapproval of the use of this drug.

The third group, composed of the unscrupulous and the charlatans, have magnified Professor Ehrlich's claims into every injection a positive cure, and have not hesitated to promise, and are still guaranteeing, a positive cure from each injection, payment to be made in advance. These men all agree that Salvarsan exerts a beneficial influence on syphilis.

The therapie of a disease should be based on the pathology of that disease, and should have as its object the removal of the cause and the restoration of the organism to a normal condition. After infection the virus of syphilis travels by the lymphatic vessels from the point of infection to the blood, and is carried by the blood throughout the entire body. In the tissues it becomes localized in numerous small foci, which become the seat of a circumscribed cellular infiltration. On the skin these infiltrated areas appear as malcules, papuls, or pustuls. This cellular infiltration is peculiar in the fact that it shows no tendency to become organized, but, after a longer or shorter period of time, degenerates and is absorbed. That degeneration and absorption occur very rapidly after the death of the spirochita palada is shown by the prompt disappearance of the lesions following treatment.

Our therapeutic indication is to destroy the spirochita palada and to eliminate from the body the toxins which have been formed by its growth.

The spirochita palada may be killed by the administration of mercury or arsenic (Salvarsan). The toxins are destroyed or eliminated by iodide of potash.

Whether or not Salvarsan should be used at all is a question which each one must decide for himself after reading the reports of those who favor and those who oppose its use. Personally, I have no cause to regret using it. I have seen very marked benefit following its uses, and have not met the complications reported by others. I have seen one case of urticaria, but no other trouble.

If, after due consideration of the reports in favor and against the use of Salvarsan, we decide to use it as routine practice our treatment should begin with the injection of a full dose.

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This should be followed, beginning one week later, by full doses of mercury, in the hope that the mercury will kill any virus which may have escaped the arsenic. The mercury should be given six to eight weeks, and be followed by iodide of potash for four weeks, and this in turn by a second injection of salvarsan ninety days after the first injection, or at a time when the disease again becomes active.

Salvarsan should not be given to feeble or decrepit patients, nor should it be given where local lesions are so situated that swelling of a Jarisch-Herxheimer reaction, should it occur, could cause dangerous functional disturbance.

Should we decide to use Salvarsan to supplement the mercury treatment, certain cases demand its administration. In all cases where the diagnosis of an initial lesion can be made before the lymphatic glands become involved, the lesion should be removed and a full dose of Salvarsan given. Dozent Oppenheim of Vienna reports a series of 194 cases treated in this manner, with 14 cases cured by one injection. In all cases where the diagnosis is made after the lymphatic glands have become involved, but before the appearance of constitutional symptoms, Salvarsan should be promptly injected. It is possible, even after lymphatic involvement, to obtain a cure by a single injection. I have had one such case. In this case, during the fifteen months since the injection this patient has shown no clincial symptoms, and his blood has been examined once a month and has been continuously negative.

All cases which do not respond promptly to mercury, and all cases which at first were benefited by mercury, but later seemed to become resistant to it, should receive Salvarsan.

In the last group of cases—those which have taken mercury for several months—the spirochita seem to grow resistant to it; that is, there seems to develop a strain of spirochita which possess a natural resistance to the action of mercury. These patients can take mercury in any form for an indefinite term, and receive apparently no benefit from it. In these cases Salvarsan gives the best results, the lesions disappearing in a miraculously short time after its administration.

In locomotor ataxia the lesion in the cord is not the cellular infiltration of syphilis, but a sclerosis due to a long standing toxemia. Salvarsan is not especially indicated in these cases, but may be given as supplemental to mercury and iodide of potash in those cases giving a positive Wassermann reaction.

Salvarsan may be given subcutaneously, intramuscularly, or intravenously. The subcutaneous and intramuscular injections are said to have the advantage of giving a more prolonged action, but have largely been abandoned because of the pain and local disturbance following their use. At the present time the intravenous injection is the method of choice.

The use of Salvarsan has its ludicrous side, and we have seen men put on a sterile gown and rubber gloves, in fact prepare themselves as they would for a laparotomy, and then solemnly make a hypodermic injection of an ounce of an emulsion of solution of Salvarsan; and recently we have been given the advice that, in order to make an intravenous injection, the skin should be incised, the vein isolated and the hypodermic needle inserted into the vein and ligated in position. To follow this advice is to acknowledge that we have not the technical skill necessary to use the simpler method of inserting the needle through the skin into the vein. It also means the branding of every patient with an indelible mark, which tells as plainly as written words that he has been given intravenous injection; an intravenous injection means Salvarsan; and Salvarsan means syphilis.

All surgical work should be made as simple as possible. An intravenous injection is purely a surgical procedure. The simpler it can be made the better. A very simple apparatus is all that is necessary. This apparatus consists of four or five feet of three-sixteenths inch rubber tubing. To one end of this tubing is attached a small glass funnel; to the other end a large-sized hypodermic needle. The base of the needle should be inserted into a piece of tubing one and one-half inches long, and this attached to the main tube by a short glass tube. This makes a window in the tube one and one-half inches from the needle. Other utensils necessary are two graduated bottles of eight-ounce capacity, with glass stoppers, and two beekers of a capacity of one pint each.

The method used is as simple as the outfit itself. After proper sterilization of the entire outfit one of the beekers should be filled with freshly sterilized distilled water, and the other with freshly prepared sterile normal salt solution. The Salvarsan powder is put in one of the bottles and three to four ounces of the distilled water added. This forms an acid solution, which should be rendered alkaline by the addition of a few drops of 15 per cent sodium hydroxide solution. It is not necessary to test this solution with litmus paper to determine its alkalinity, as the addition of the sodium hydroxide to the acid solution forms a precipitate, which is dissolved as soon as the solution becomes alkaline.

The funnel is taken and the outlet plugged with a pledget of sterile cotton, and the solution filtered through it into the other bottle, and the amount of solution increased to eight ounces by the addition of sterile water.

The needle may be inserted into any one of the superficial veins of the forearm, the medium basilic usually offering a favorable spot. The skin over the area where the puncture is to be made should be sterilized with iodine and alcohol. A light elastic bandage is applied above the elbow, tight enough to slightly interfere with the venous circulation, but not tight enough to impede the arterial. We now attach the funnel to our apparatus without removing the cotton plug, and fill with a normal salt solution, allowing it to run through the tube and needle, being sure that no air bubbles are retained in the tube. The tubing five or six inches behind the glass window is bent on itself to prevent motion in the column of water contained in the tube. The needle is now inserted through the skin and into the vein, the funnel being held at a point lower than the arm. As soon as it is felt that the needle has punctured the vein the pressure on the tubing is to be released, and the window watched to see if the blood enters the tubing through the needle.

If the salt solution in the tubing becomes tinged with blood we have positive proof that the needle is within the vein, and we instantly remove the elastic band from the arm, raise the funnel high enough to overcome blood-pressure, and start the injection of salt solution into the vein. We should watch the vein at the point of puncture to be sure the salt solution is passing into the vein, and not into the cellular tissue around it. If we find the salt solution is not running into the vein, but filling the tissues around it the needle must be removed, and the process repeated in another vein, or at another point on the same vein. When we have the needle properly placed in the vein, a piece of adhesive plaster is placed across the needle, and another across the tubing five or six inches away from the needle to prevent the motion of the patient accidently withdrawing the needle. As the salt solution lowers in the funnel, and just at the point it disappears in the tubing, we add our solution of Salvarsan, refilling the funnel as often as it becomes empty, until our solution is exhausted. As the last of the solution of Salvarsan passes out of the funnel into the tubing we again fill the funnel with normal salt solution and watch our glass window in the tubing until we see that the yellow Salvarsan solution has disappeared and the clear saline solution has taken its place. In this way we force the last portion of the Salvarsan solution out of the tube into the vein.

The adhesive plasters are now loosened, and with the tip of the finger pressure is made on the vein one-half inch distal to the point of entrance of the needle. The needle is now removed with a rapid motion, and a piece of gauze laid over the puncture, and bound with a single strip of adhesive plaster. The placing of the finger upon the vein in the manner described prevents the blood entering the vein before the needle-hole has had time to close. It is not unusual to make the puncture and withdraw the needle without the loss of a drop of blood.

The after-effects of an injection of this kind are very slight. A few patients will complain of nausea or have slight vomiting, and nearly all will have some looseness of the bowels from 24 to 48 hours. Other than these I have seen no constitutional disturbance which could be credited to the injection.

How long it is necessary that patients should be kept quiet after an injection of this kind is yet undetermined. Salvarsan is eliminated by the kidneys and bowels. The elimination by the kidney is practically completed by the end of the third day, so it would seem to me safe to allow these patients to return to their ordinary occupations after that time. In fact, I have had several patients who had so little disturbance after the injection that they escaped me and returned to their occupations the following morning, and suffered no ill-effects. It is my custom to keep these patients in bed twenty-four hours, in the house the next twenty-four hours, and then allow them to return to their usual duties.

DISCUSSION

Dr. A. H. Youngs (Pierre): I am not able to discuss this subject as one who has had experience with Salvarsan, and I think I have plenty of company when I say that. Doctors in the outlying districts do not see such things. However, I do wish to call attention to a few things Dr. Wright has not dwelt upon. Regarding the reports concerning Salvarsan, I find that there is a great difference of opinion, but in that connection I wish to call attention to an article published in the *Journal of the A. M. A.* under date of November 18, 1911, by Dr. Hirschfelder, of San Francisco, and I want to read an extract which deals with this subject. The doctor spoke only on the use of salvarsan in a certain disease, and this article speaks of it in regard to the use in other diseases.

Dr. E. Klaveness (Sioux Falls): I learned by listening to the last speaker that it has been reported that Salvarsan has been given by mouth. I have not seen it stated in the journals, but, nevertheless, I have used it quite a few times by mouth, and I wish to make mention of it here. I have given it in pills that contained one centigram each, and have increased these up to twenty centigrams a day, when by taking those doses two days in succession I would have local symptoms of arsenical intoxication, e. g., acute proctitis. These doses were given in syphilitic cases.

I have also made use of Salvarsan with good results in pemphigus. I had a case of a young girl, seventeen years old, who had practically the whole body denuded because of these blebs, and she was in such a pitiful condition she could not be moved to any hospital or even turned in bed. She took in all five or six tubes of Salvarsan, making about three hundred pills, and the condition healed up very nicely. She was out doors and was to all appearance perfectly well when she had a relapse within the last week or two, and during this relapse she came to Sioux Falls to see me. As I thought she had had Salvarsan enough I switched over to the quinine treatment, which also gave good results. Her skin is coming in as fine as any one could wish. There remains, however, a yellow-brownish pigmentation all over the body.

I wish to throw a little historical light on this Salvarsan proposition. It is interesting to know that much of this progress in the study of syphilis has come to us, not from the specialists who have taken time to study this particular disease, but through laboratory research work. Schaudin first described spirocheta. Roux and Metchnikoff gave us the proof that syphilis could be inoculated on animals, and Wassermann gave us the sero reaction, while Ehrlich placed the finishing touch on these series of investigations by adding a new and powerful drug to our armamentarium, and on the whole it is rather the result of laboratory work than the clinical study of this disease that has thrown new light upon this subject.

I fully accord with Dr. Wright in giving my approval to this valuable remedy, and also respect the opinion of certain men who actually oppose it. I might mention the well known French author, Dr. Hallopeau, who has taken a stand against it and who is a bitter enemy of Dr. Ehrlich.

Dr. Franklin O. Wright (Essayist): I would like to say just a word regarding the fatalities. I believe if you look up the reports you will find that Salvarsan has been used more in recurrent cases. Prof. Finger of Vienna had one fatal case. He gave full doses to a man with a gumma in the larynx, and the man suffocated before they could do a tracheotomy on him. For that reason, at least, I should not use Salvarsan in any class of cases where swelling would cause functional disturbance.

Prof. Finger also reports injury to the optic nerve coming on months after an injection of Salvarsan. Why this injury recovered after a second injection if he had this injury to the optic nerve by the first injection, is more than I can determine. Finger says that, while he has used it in 500 clinics, he has never used it in his private practice.

The experimentation with this drug was done with the spirillum of chicken cholera. That work was done with mice and guinea-pigs.

I have never used Salvarsan by mouth. My understanding about it is this: We use Salvarsan to obtain results in the shortest possible time, giving the largest dose possible, and we have no more to expect from it by giving repeated small doses than we have from any other drug by giving repeated small doses.

THE CEREBROSPINAL FLUID AS A DIAGNOSTIC AGENT*

By E. M. Hammes, M. D.

ST. PAUL

The knowledge gained from the examination of the cerebrospinal fluid has advanced the study of the nervous and mental diseases and has placed them on a more scientific basis than any other progress in neurology in the past decade. Since Vorläufer, in 1872, reported his studies on the cerebrospinal fluid in animals, and since Quincke performed the first lumbar puncture on man, in 1891, hundreds of careful observers have added valuable data on this subject. Foremost among these are such men as Lichtheim, Widal, Nissl, Nonne, Noguchi, Körnig, Plaut, and many others Although Oppenheim seems reluctant to advise a lumbar puncture, on account of the subsequent dangers, most observers do not share this fear. Henning in reviewing the literature has collected 23 deaths. These occurred most frequently in brain tumors. However, if the amount of spinal fluid withdrawn does not exceed 10 c.c., and if the patient is kept in bed for twenty-four hours or so, following the lumbar puncture, both the danger of death and the unpleasant symptoms are minimized. The commonest annoying symptoms are headache, lasting from one to seven days, nausea and vomiting, vertigo, and shooting pains in the lower extremities if the caudo-equina is injured. Herpes zoster and adhesion between the dura and cauda are among the rarer occurrences. In my limited experience of about 40 cases, I saw marked nausea once, severe persistent headaches three times, and lightning pains in the lower extremities once. A mild frontal headache for twenty-four hours was quite common.

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Normal cerebrospinal fluid is clear, contains about 0.3 of 1 per cent albumin, and, according to Shönborn, about three cells to a field of 400 magnifications. Since the introduction of the Fuchs Rosenthal counting method, one can get a more accurate estimate of the number of cells in the spinal fluid.

Pathological conditions in the spinal fluid are characterized by an increase in the amount of spinal fluid, an increased pressure, clouding of the fluid, admixture of blood, fibrin formation, pus, the presence of micro-organisms, an increase in the amount of albumin, the presence of cellular elements, and the reaction to the Wassermann test.

The normal amount of cerebrospinal fluid varies from 50 to 150 c.c., and the normal pressure, according to Krönig, is about 125 mm. of water in the recumbent position and about 410 mm. of water in the sitting posture. These conditions are increased in brain tumors, in hydrocephalus, in meningitis serosa, and all forms of meningitis and associated conditions. The pressure has been reported as high as 1,000 mm. of water. However, we may find no increased pressure demonstrable in some of the above-mentioned conditions, if the foramen of Magendie is closed by adhesions. One can estimate roughly the pressure by noticing the rate of flow from the needle. In one case of acute meningitis I saw the spinal fluid squirt out at least two feet. In our cases of paresis and tabes we usually found a moderately increased pressure. In acute cases the estimation of the pressure has little value. But when the diagnosis rests between such conditions as brain tumor and certain forms of encephalitis and dementias, a knowledge of the exact pressure is more important than any other examination of the fluid. An abnormally low pressure has, so far, been of no aid as a diagnostic agent.

A discoloration of the fluid is quite common. A citron-yellow color occurs frequently in tubercular meningitis, but may also be seen in suppurative conditions. In old hemorrhages the color is usually darker. We may find it also in jaundiced patients. Whenever blood is found in the spinal fluid, the question naturally arises whether the blood was in the fluid or was caused by the lumbar puncture. If the hemorrhage was present in the fluid previously, the yellow color will not disappear when the fluid is centrifuged, but will remain uniform throughout, and the blood will not coagulate in the bottom of the tube. We frequently find blood in the spinal fluid in intracranial hemorrhages except when they are solely subdural, also in basal aneurisms, in traumatic conditions, and in tubercular meningitis. The most important discoloration or clouding of the spinal fluid is that caused by an increase of the leucocytes. In suspicious cases of suppurative meningitis, frequently a positive diagnosis can be made at a glance at the spinal fluid. Sometimes it is necessary to use the microscope to find the increase of the polymorphonuclear leucocytes. This condition usually exists in any suppurative disease of the brain or spinal cord.

An increase of the lymphocytes often occurs in tubercular meningitis. In this type of meningitis we also get a fibrin formation (*Gerinsel Bildung* of the Germans) if the spinal fluid is allowed to stand in a cool place for twelve to twenty-four hours. An increase of the lymphocytes in chronic cases is highly indicative of a parasyphilitic state of the central nervous system, either tabes or paresis or cerebrospinal lues or congenital lues. Nonne states that in tabes and paresis this occurs in 96 per cent and in cerebrospinal lues in 70 to 80 per cent. This lymphocytosis can also be found in about 40 per cent of so-called cured syphilitics without any symptoms of the central nervous system. This of course enhances its value to a certain degree. Our observations have not shown such a large percentage of lymphocytosis in general paresis or tabes. A mild degre of lymphocytosis has also been reported in idiopathic epilepsy in 15 per cent of the cases, in multiple sclerosis in 25 per cent, and in tumor cerebri in 50 per cent. We speak of a mild lymphocytosis when the cell-count does not exceed over 40 cells to the field. A marked lymphocytosis may show a cell-count as high as 900 to 1,200 to the field. According to Krönig an increase of the cellular elements also occurs in serous meningitis. This is a very important diagnostic point to differentiate this condition from hydrocephalus or exudates due to a vasomotor disturbance. A mild lymphocytosis has been observed occasionally in cases of typhoid fever, also in herpes zoster. Widal makes this statement: "Any form of meningitic irritation can produce lymphocytosis." Other noteworthy, although rare, findings have been reported by

Dufour, Rindfleish, and others. They found in several cases tumor cells in the spinal fluid in malignant conditions of the brain and spinal cord. Jacob reports a case where lumbar puncture showed echinococcus segments, and Hartman reports another case where he found cysticerci vesicles in the spinal fluid. It is strange that this has not been more frequently observed, for usually the cysticercus in the brain is of the branching variety, known as the cysticercus racemosus, and in 61 per cent. of the cases, according to Verden and Iversenc, it is located in the fourth ventricle.

Much light has been thrown on the etiology of nervous diseases from the bacteriological study of the spinal fluid. Valuable knowledge can be obtained from the microscopical examination of the hanging-drop preparation and of stained specimens. In suppurative meningitis with purulent spinal fluid we usually find the streptococci and staphylococci, also the pneumococci. However, negative bacteriological findings with purulent spinal fluid usually indicate that a meningitis is present, but that the primary focus, such as a brain abscess, is successfully walled off. Neisser reports such a case where a brain abscess was correctly diagnosed and successfully operated on, and where the cerebrospinal-fluid findings showed a sterile but purulent condition. In epidemic cerebrospinal meningitis the findings of the diplococcus intracellularis meningitidis clears up the diagnosis. In some cases, even of the epidemic type, Fraenkel's diplococcus has been found and can be differentiated from the former only by their staining characteristics, etc. Rullman reports a case where both types of diplococci were found in the spinal fluid at the same time. In any suspicious case it is advisable to examine the spinal fluid as soon as possible, for the diplococci are most readily demonstrated during the first ten days of the disease. Tubercle bacilli in the spinal fluid were found first by Lichtheim. Since then improved technic has made this quite a common occurrence, and Pfändler states that during the stage of paralysis, he found them in over 90 per cent of his tubercular meningitis cases. The Germans prefer to examine for the tubercle bacilli in the fibrin particles which occur on standing. Other investigators centrifuge and stain the precipitate. Occasionally both these methods fail, and one must resort to animal inoculation. Sometimes all these attempts are useless, but if we find a lymphocytosis and get fibrin formation in the spinal fluid with a history of meningitis, we can quite safely make a diagnosis of tubercular meningitis. Other bacteria rarely encountered in the spinal fluid are such as the influenza bacillus, the bacterium coli, the typhoid bacillus, and others. In meningismus a negative bacteriological examination is of great importance, especially if the patient is suffering from an acute infectious disease or typhoid fever or pneumonia.

In the chemical examination of the spinal fluid, the presence of cholin has very little diagnostic import, but an increase of globulin, especially in chronic cases, is highly significant and points strongly to a parasyphilitic state of the central nervous system. Nonne has originated a simple, but very reliable test. He takes a certain amount of spinal fluid and adds to it an equal amount of a saturated solution of neutral ammonium sulphate. A cloudiness occuring in three minutes means a positive test and is spoken of by Nonne as Phase I. Clouding of the fluid after three minutes is spoken of as Phase II, but has no diagnostic significance whatsoever. Nonne reports that he finds this test positive in general paresis in about 100 per cent of his cases, and in tabes and cerebrospinal lues in 90 per cent of his cases. He places greater significance on this test as a diagnostic agent than on the increased lymphocytosis, for, as was mentioned before, increased lymphocytosis occurs in about 40 per cent of so-called cured luetics, while he has never found Phase I positive in any luetic patient unless there was involvement of the central nervous system. Noguchi has developed a similar test. He takes one part spinal fluid and adds five parts of a 10 per cent butyric acid solution and boils, and then adds one part of a decinormal sodium hydroxide solution and boils again. A distinctly flocculent precipitate after an hour's standing means a positive test. The value of this test is about the same as the Nonne test. We found both these tests positive in about 80 per cent of our parasyphilitic cases. White and Ludhum state that an absence of the Noguchi butyric acid test is more proof of the absence of syphilis than a negative Wassermann test. They base their conclusions on the examination of 1,710 cases. They also state that the Noguchi test appears before the Wassermenn reaction and remains longer in cases under treatment. Every case in which treatment was stopped while the Noguchi was still positive had the recurrence of a Wassermann reaction in a short time.

Since the introduction of the Wassermann test in serodiagnosis, we no longer need depend on the patient for a positive or negative luetic history, for laboratory methods make it a practical certainty. The relation of the cerebrospinal fluid to certain diseases is similar to that of the blood regarding the Wassermann test. In the parasyphilitic disease we find a positive Wassermann in the blood and spinal fluid in a large percentage of cases. According to Nonne in tabes dorsalis the blood gives a positive reaction in 96 per cent, and the spinal fluid is positive in 50 per cent of his cases. In general paresis the blood gives a positive reaction in about 90 per cent, while the spinal fluid gives a positive test in a much larger percentage of cases than tabes,—as high as 90 per cent. In cerebrospinal lues conditions seem entirely different. In this disease we get a positive Wassermann in the blood in almost every case, while the spinal fluid, according to most authors, is invariably negative. Our cases have given about the same findings. It is interesting to note that all these tests, namely, lymphocytosis, excess of globulin, and the Wassermann reaction in the blood and spinal fluid, are positive most frequently in general paresis.

In conclusion it might be of interest to report a few cases:

A young man, 28 years old, with negative family and personal history, an orderly, suddenly became unconscious while working around the hospital, was put to bed, and after regaining consciousness after a time was found to be completely paralyzed on the left side. The case looked very much like a cerebral hemorrhage, but no cause for it could be found. Later he developed rigidity of the neck muscles. A lumbar puncture was performed. The spinal fluid was clear, but contained an excess of lymphocytes and gave fibrin formation. A centrifuged specimen showed tubercle bacilli. This made the diagnosis of tubercular meningitis clear.

Another extremely interesting case for diagnosis on account of the negative findings in the spinal fluid was that of a man 40 years old. Denied lues, but used alcohol and tobacco to excess. The first time I saw him he was markedly ataxic and complained of failing vision. He had loss of knee-jerks and sluggish pupils, and the Romberg sign was positive. He had no special tenderness along the nerve trunks. A diagnosis of tabes was suggested. However, examination of the field of vision, a few days later, showed that there was central scotoma present and that there was practically no narrowing of the field of vision, as frequently occurs in tabes. A lumbar puncture was made, and the spinal fluid was normal in every way. The Wassermann in the blood and spinal fluid was also negative. On the strength of these findings a diagnosis of neuritis, due to alcohol and nicotine poisoning, was made, and under eliminative treatment the patient made a complete recovery.

Twice I have seen patients on whom gastroenterostomy had been performed and the gallbladder removed on account of severe persistent attacks of vomiting. Both of these patients complained of no other symptoms, with no ataxia, no shooting pains, etc. Neurological examination was absolutely negative in every respect. In one case the spinal fluid showed a marked lymphocytosis, and in the other case the Wassermann reaction was positive, and an excess of globulin and lymphocytosis was found in the spinal fluid, enabling us to make a diagnosis of tabes with gastric crises as the only symptom.

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THE NEW PUBLIC HEALTH—EIGHTH PAPER

THE PUBLIC HEALTH LABORATORY

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The previous article discussed the relation of the Public Health engineer to the protection of man from disease, through the construction, operation, and direction of those public utilities already proved to be, at times, *routes* of infection.

Some day, when we have really determined the conditions which truly promote physical well-being, as distinguished from those which merely secure escape from disease, the Public Health engineer will find larger functions in a wider field, the supervision of the whole material surroundings of man.

The present article attempts to set forth the relation of the Public Health laboratory man to the same two divisions,—to the promotion of high health, on the one hand, and to the prevention of disease, on the other. Like the Public Health engineer, the Public Health laboratory man can as yet contribute but little to the former, and for the same reason, i. e., because so little is really known about it. Like the Public Health engineer, the Public Health laboratory man deals with the prevention of disease, and chiefly with the prevention of the infectious diseases. Again, like the engineer, the laboratory man deals in part with *routes* of diseases, with those public utilities which at times form highways for the exchange of infected, and uninfected, bodily discharges. But, unlike the engineer, his work is not confined to *routes*.

The Public Health laboratory man, like the Epidemiologist, deals also with *sources*, i. e., with the infected person. In some ways he goes further than the epidemiologist, for he deals with the infected discharges themselves, rather than with the person who discharges them; and, not stopping even there, he deals with, in those discharges, the very principles of disease itself,—the individual little particles of living matter whose activities in the human system produce so much trouble for us all.

This dealing intimately with the ultimate causes of disease is a fascinating, dangerous, peculiar life-work, an actual herding, handling, studying, of the very essences of the dreaded plagues of old. What would not the ancient philosophers and sages have given for one glimpse of a modern Public Health laboratory where matter-of-fact men handle, in their daily matter-of-fact routine, diphtheria plants, typhoid plants, tuberculosis plants, etc., quite as a student farmer handles potatoes or corn?

Because the little plants, or animals, perhaps, that produce many of our common diseases are as yet unrecognized, for instance, scarlet fever, measles, and smallpox, to name only three, the Public Health laboratory man's chief daily duties lie with typhoid, diphtheria, and tuberculosis. These furnish the bulk of his work. His chief services to mankind, in the temperate zone at least, consist in the aid he gives in recognizing those persons who are infected with one of these three germs without showing conclusive, perhaps any, symptoms of their presence. True, he can and does perform like services in other diseases whose causes are recognized—such as anthrax, bubonic plague, cholera, glanders, leprosy, etc.; but these are so rare as to form only a flavoring for his daily grist. In the venereal diseases, also, the biological causes are known and can be recognized, but the laboratory man must await the development of the growing public demand for the handling of these diseases on a par with other infections, the taking up of these great subjects by legislative and executive authorities. Until that time comes the laboratory man can proclaim his own readiness and point to the road, but he can do little more.

With the *routes* of infection,—water, flies, food, milk, and contact,—the laboratory man has much to do, but, again and for similar reasons, he deals with these routes, in the temperate zone, chiefly when typhoid, diphtheria, or tuberculosis are involved. His functions in all this work are chiefly analytic, i. e., to find the particular water, or milk, or food which may be dangerous; sometimes to detect, if he may, the presence in them of the deadly germ itself.

Unfortunately, for reasons already offered in a different connection earlier in this series, the germs of disease are very rarely found in water, food, milk, or flies. They live so short a life outside of the human, or animal, bodies which form their natural growing-grounds that the laboratory man seldom encounters them in any other place. The usual thing is, that long before a "sample" of water, etc., arrives at the laboratory, the disease germs it may once have held are dead or so outgrown by others that the best laboratory methods must necessarily fail to find them.

So little is this understood that one of the almost daily happenings in every laboratory is the receipt of water, or milk, or food (flies, fortunately, are not often sent, as yet) from laymen, even from physicians, with the request that they be searched for typhoid or diphtheria germs.

But consider! Before a given water supply has attention called to it as a source of typhoid fever, typhoid fever cases usually must have developed from it. But typhoid fever is a disease which does not develop even its very first symptoms until, on an average, two weeks have elapsed after the germs first entered the body from the water supply. Usually, another week passes before the physician is called and perhaps another week, more often two or three, before the sample is sent; therefore five weeks is perhaps the usual time which has slipped away *since the typhoid germs were present in the water supply*, before the laboratory man receives a sample from it! Now, *two* weeks is probably the usual maximum for typhoid germs to live in water, even if the water be stagnant and in a dark place. When it is heaving, changing, exposed to the sun and wind and current, or flowing fast, as in a river, the life of disease germs in it is even shorter, and the chances of their dispersion and disappearance by the mere physical losing of themselves are almost infinite. To apply laboratory methods to finding typhoid germs in the ordinary sample of water taken from the suspected supply five weeks after the cases were infected, would be like shooting at the place where a flock of ducks *had been five weeks before*. "Hunting for a needle in a haystack" is discouraging enough in itself, but suppose you knew the needle had been carefully removed before you began your hunt!

The laboratory man who examines water does so, not in the hope of finding typhoid germs,—he does not even try to look for them, as a rule,—but to find certain other signs of excretory pollution. Curiously enough, these signs are often of more real value to Public Health than would be the finding of the typhoid germs themselves, were that practicable; but to explain how this is would be out of place here. The point is this: The laboratory tests of the supposed routes of infection in any given case are made by methods and for ends wholly different from those which the public fondly imagines. The results obtained are often far more valuable than the public realizes or expects. At the same time, the definiteness of these results, because of the facts already outlined, are far inferior to those obtained in the laboratory examination of infected persons—in brief, the information from laboratory sources concerning "samples" usually requires elucidation and explanation in the light of all sorts of other information, sociological, meteorological, topographical, geological, etc. Considered thus, the laboratory work is nearly invaluable, but, taken by itself, almost as nearly worthless.

The happy ignorance displayed by those who think that an analysis of water, or milk, or food, even the most thorough, can in itself and by itself give useful sanitary information is equalled only by the joyful confidence of the southern darkey in a rabbit's foot.*

The true position of the laboratory in the coordination of public health workers which will rule in future organization, has been achieved but seldom.

The Public Health laboratory man of today has ceased to be the leader in Public Health endeavor which he once was, partly because he has been swamped with routine work in the lines he has himself developed, but chiefly because he is a laboratory man and because the very nature of his work has kept him indoors, out of and apart from the stirring fields of human life in being. Perfect enough in his own technic, he has perforce lost touch with all but his own work, and other lines of Public Health more closely involved with the outer world, have passed ahead of his.

The laboratory man must get out into the actual daily lives of the people and communities he serves. He must know outside conditions as well as those in the laboratory. He must work more closely with the engineer and the epidemiologist. He has his own place which they can fill no more than he can fill theirs, but he must understand their work, and they his, much better than at present.

Moreover, the engineer and the epidemiologist suffer from the present dissociation of the laboratory quite as much as does the laboratory man himself. Field work moves lamely, oftentimes from lack of laboratory knowledge, just as laboratory work is oftentimes inert from lack of field knowledge. During the last few years the frequent transfer of laboratory men into the field work of epidemiology and engineering has evolved a set of men who recognize this fully. But it is not by transferring laboratory men to other fields that the laboratory can be developed. It is by putting the laboratory itself into the field —and only so—that this can be accomplished.

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*The British Medical Association at its annual meeting, held this year, passed the following resolution: "That this con-joint meeting of the sections of State Medicine and Bacteriology unanimously desires strongly to urge that no opinion as to the quality of a water for dietetic purposes should be arrived at on bacteriological evidence without a local and topographical inspection of the sources of the supply made by a competent observer."

In field work, and in research, so much neglected of late, the laboratory man will find his future, and he will not deal solely, as at present, with infectious diseases. True, the venereal diseases must be added to the present list of those for which routine laboratory facilities are provided. But some non-infectious diseases may become preventable diseases, if their causes are discovered, and the Public Health laboratory of the future, acting in conjunction with the physiologist and the pathologist, may find therein usefulnesses now undreamed of. Finally, as we slowly learn the true personal hygiene of food, clothing, sleep, exercise, etc., the Public Health laboratory will take its share in the greatest but least developed of all Public Health procedures, namely, the physical regeneration of the race.

SUMMARY

The Public Health laboratory finds its chief functions today in the detection of infectious persons (sources) and the identification of infected things (routes) as a means to the end of abolishing those sources and blocking those routes. The average Public Health laboratory has been swamped with routine, cribbed, cabined, and confined until useful research has almost died out and real knowledge of outside conditions lost. The engineer and the epidemiologist have progressed fast and far by active contact with the needs of the outside world, and the laboratory can attain its proper future only by like development.

PROGRESS IN MEDICINE

Abstracts of medical reprints and articles on file in the library of the Department of Medicine, College of Medicine and Surgery, University of Minnesota.

UNDER THE CHARGE OF

DR. CHAS. LYMAN GREENE

Professor of Medicine and Chief of the Medical Clinic

These abstracts are read and discussed at the departmental meetings held monthly at the University Hospital.

A CASE OF BANTI'S DISEASE: SPLENECTOMY, FOLLOWED BY TYPHOID FEVER AND APPENDICITIS

By J. Fuhs, M. D., Brooklyn

The patient was a girl of seventeen with retarded development, a positive Wassermann reaction, and other evidences of hereditary lues. She presented findings typical of Banti's disease, the liver reaching 7½ cm. and the spleen 9 cm. below the costal margin. The blood-findings showed red-blood cells, 3,200,000; hemoglobin, 48 per cent; white-blood cells, 5,500. Antiluetic treatment proving of no value, splenectomy was performed. Continuous improvement followed, so that nine months later the hemoglobin was 65 per cent; red-blood cells, 6,000,000; white-blood cells, 11,400.

One and one-half years after the splenectomy she was taken with typhoid fever. At the beginning of the third week appendicitis developed, which, at operation, proved to be purulent. The patient made an uneventful recovery from both conditions. Two years after the operation a blood-examination showed red-blood cells, 5,800,000; hemoglobin, 104 per cent; white-blood cells, 11,000.

In discussing the etiology Fuhs thinks it is clear that there is a toxemia emanating from the spleen, but the experimental evidence is inadequate and rather conflicting. There is no doubt, however, of the great value of splenectomy in cases of true Banti's disease.

E. J. Huenekens.

SOME OBSERVATIONS OF THE SYMPTOMATOLOGY AND DIAGNOSIS OF CERVICAL RIB

By Joseph L. Miller, M. D., Chicago

Miller says that symptoms due to cervical rib are apparently much more common than the reported cases would indicate. In eight cases seen recently by him, he observed a wide variation of symptoms. The most significant diagnostic point was a persistent, intermittent, or continuous disturbance in one arm. Other symptoms were marked susceptibility to moderate cold, marked vascular disturbance, either ischemia or cyanosis, and acute exacerbation of simple pain, after slight exposure or moderate use of the part. The relief obtained by position, especially placing the hand on the head when asleep, is very suggestive, as is the progressive character of the trouble.

None of the ribs could be palpated but the x-ray was depended upon for diagnosis. Miller emphasizes the necessity of having pictures taken from different angles, and also observing the plate carefully for indistinct shadows.

Sometimes a very short cervical rib connected by a tendinous band with the first dorsal rib, may give rise to symptoms. In regard to this latter, in certain cases with negative x-ray findings, an exploratory incision may be advisable to search for the tendinous band.

Five of Miller's eight cases were operated upon with excellent results; one was not fully relieved for a year, but the symptoms in the other four disappeared in a few weeks.

E. J. HUENEKENS.

GLUCURONIC ACID DETERMINATION (TOLLENS) IN DUODENAL OBSTRUCTION

Reprinted from the Proceedings of the Society for Experimental Biology and Medicine, 1911, IX, pp. 28-30

By JOHN WILLIAM DRAPER and FREDERICK W. SCHLUTZ

The liver seems to be active in the conjugation of camphor with glucuronic acid. A dog was given camphor, and the output of camphor-glucuronic acid, before and after artificial obstruction, was used as an index of the impairment in liver-lesion. Two to five gm. of camphor and oil were given hypodermically. Before the obstruction 41.76 per cent, 44.00, and 43.47 per cent, respectively, of the theoretical total were recovered. Three days after the obstruction 27.19, 19.21, and 18.05 per cent, respectively, were recovered.

The above results from their uniformity suggest accuracy for the method so far as it goes, and the marked decrease after operation implies possible diminution of certain liver functions after duodenal obstruction.

J. P. SEDGWICK.

SOME POINTS IN THE DIAGNOSIS AND TREATMENT OF CHRONIC DUODENAL ULCER

By B. G. A. MOYNIHAN

Lancet, January 6, 1912

Mr. Moynihan, in the above paper and in another address, takes up some very significant facts gleaned by him from a study of over 370 cases where ulcer was demonstrated on the operating-table. The author mentions the mistake made in all the early texts on stomach diseases where duodenal ulcers were wrongly interpreted as hyperchlorhydria, etc. In his own words: "A genuine organic disease was miscalled functional."

In regard to acid findings, in his experience he classifies all the cases as follows: In 40 per cent HCl is in excess; in 40 per cent HCl is normal; in 20 per cent HCl is below normal. Summing up, he writes: "Hyperchlorhydria, a term which has been debased and shorn of its original significance, should not be used in a clinical sense, but should be held strictly to indicate the excess of active hydrochloric acid in stomach-contents. Hyperchlorhydria is present in most cases of duodenal ulcer during the stage of active ulceration. Hypochlorhydria may be present in (1) duodenal stenosis, (2) in intervals between "attacks," (3) rarely in acute phases of ulceration. Hyperchlorhydria is present in other diseases, notably gall-stones and appendicitis, and its presence explains the mimicry of the symptoms of duodenal ulcer by these various diseases. The persistent presence of an excess of active hydrochloric acid in stomach-contents is indicative of some organic rather than functional disorder."

Mr. Moynihan has, for the last two years, used bismuth radiographs of his stomach cases as an aid in diagnosis. He states that in uncomplicated cases of duodenal ulcer the muscular activity of the pyloric portion of the stomach is exalted, and the bismuth is seen at once to shoot rapidly into the duodenum. He is not prepared to say that this is characteristic, but there is no doubt that it is almost constantly present. This condition, as by Hertz and Barclay, is termed by him the "hypertonic" stomach.

As to occult blood in stools, the conclusions in 20 cases follow: 10 positive and 10 negative. Dr. Craven Moore is quoted, who has found blood in 100 per cent of his personal cases. He bases the diagnosis of ulcer on these three factors: (1) history first and foremost, and indeed almost exclusively; (2) hyperchlorhydria during "attacks;" (3) the striking and possibly characteristic radiograph or fluoroscopic picture after a bismuth meal; (4) occult blood in stools; (5) in later stages a slight or severe stenosis. Physical examination is of little or no aid until stenosis has developed.

F. A. OLSON.

ULCER OF THE STOMACH AND DUODENUM, WITH SPECIAL REFERENCE TO THE END-RESULTS

By W. J. MAYO, M. D

Annals of Surgery, September, 1911

The papers covers a series of 1,000 indurated ulcers of the stomach and duodenum. The so-called clinical, medical, and mucous ulcers are omitted. The later or acute mucous ulcer is the type which commonly gives rise to sudden, severe, and often fatal hemorrhage, especially in chlorotic girls. The list includes 428 gastric and 572 duodenal ulcers. The classification of the earlier cases no doubt placed many of the duodenal ulcers in the gastric column. In the last 621 cases up to January 17, 1911, 2 out of 3 cases were duodenal. Again, 3 out of 4 ulcers were in men, of whom 93 per cent were single.

The study of the comparison of these many histories is of great practical import to the diagnostician. Besides emphasizing the definite type of pain and time of pain in the majority, the following is at variance with the usual text-book picture: Early hyperacidity is most common, but with obstruction and, later in life, normal or subnormal acids. Hypersecretion is prominent and more persistent than high acidity. Hemorrhage is not so important as supposed, while the most important single sign is the finding of food remnants 8, 10, or 12 hours after meals. The following is given on indications for surgery in these cases: "The indications for the surgical relief of chronic ulcers of the stomach and duodenum are both positive and relative; positive, if obstruction, repeated hemorrhages, and severe pain exist, or if, on account of disturbed digestion, the patient is insufficiently nourished; relative when, for any or all of these reasons, the patient is unable to maintain good physical condition on the food which circumstances permit him to obtain, and his chronic disability intereferes with his vocation."

Dr. Mayo concludes from his study: First, that the treatment of all duodenal and all obstructing ulcers of the pyloric end of the stomach by gastrojejunostomy and excision, or infolding the ulcer, is satisfactory and gives 98 per cent of cures or great improvement; second, that 85 per cent of ulcers of the body of the stomach will either be cured or be greatly relieved by excision or divitalizing suture-compression with gastrojejunostomy. In addition, closure of the pylorus may be practised with benefit. The remaining 15 per cent will be more or less benefited, and, so far as we have observed, none have been made worse by operation. The mortality of the surgical treatment of chronic gastric and duodenal ulcer is well under 2 per cent.

F. A. Olson.

AN ADDRESS ON THE CORRELATION OF SYMPTOMS AND SIGNS OF SOME ABDOMINAL DISEASES

By B. G. A. Moynihan

British Medical Journal, February 17, 1912

In this paper the writer takes up duodenal and gastric ulcers, gall-stones, and diseases of the pancreas. The address was delivered before the Manchester Pathological Society, and in the outset Mr. Moynihan ventures to call to their attention his recently coined phrase: "pathology of the living," and to assert his belief in the importance of a knowledge of the morbid changes in the abdominal viscera during the life of the patient. His own investigations into this form of pathology being mostly concerned with the abdominal organs, he first discusses some of the new discoveries that have been made in regard to ulcers of stomach and duodenum. He says that the old firmly established views and opinions tenaciously held by generations of physicians have been shown to be founded on fancy rather than fact, the most excellent example of this being in connection with the various disorders classified under the term "dyspepsia."

The author brings out the ease, assurance, and frequency with which the diagnosis of "gastric ulcer" is made, judgment being based on the text-book picture. He says further: "There can be no doubt whatever that in a majority of the cases the opinion has been wrong, and the treatment based upon it futile and ill-directed. It does not need a long experience in the operating-room to convince one that the 'gastric ulcers' have their seat more often in lesions of other organs than in the stomach."

The three stages through which the surgeon has gone to reach the present era are recited. In the first stage the dramatic results of gastro-enterostomy in cases of stenosis led the operator to apply it in cases where with "every circumstance of care and with every aspect of reason and probability" an ulcer was suspected. "A visible, tangible, demonstrable lesion" was not demanded by the surgeon, but haste was made to perform the intended procedure. Moynihan states that unless a lesion can be made plain to the onlooker, no operation should be done on the stomach; for an ulcer that has been the cause of prolonged and recurrent "attacks" will have engaged all the coats and can be located from the outside. This is certainly in accord with the view taken in this country, but it cannot be too often emphasized.

The second stage was one of disappointment, that is, often no lesion was found and the abdomen was closed. The circumstance is likened to building up the science of chemistry by the alchemists in their vain investigations.

The third or present stage brought the recognition of other lesions as causes, such as adherent or obstructed appendix, a tuberculous lesion of the ileum or cecum, a prolapsed and perhaps obstructed stomach, gall-stones, or cholecystitis. Dead-house pathology did not aid in this discovery.

These findings lead up to two questions which are brought up in the paper. The first is, Why should the stomach manifestations predominate, or, as is given here, why should the "stomach talk for these outside lesions?" The second question involves the value of the great variety of "cures" that are so often recommended.

In taking up an explanation of the first question as regards the predominating stomach symptoms, the writer discusses (1) hematemesis. Formerly it was supposed that ulcer must be present or vicarious menstruation, or some such interpretation was offered. The writer concedes some actual lesion, but not necessarily an old one. From experience with erosions, fissures, and acute ulcers of the stomach and bowels in acute toxemic conditions, such as typhoid (stomach and duodenum), erysipelas, superficial burns, pemphigus, uremia, operations on genito-urinary organs, and many other intensely infective conditions, sufficient is known to show that these things are toxemic in origin. To go further, a continuing septic process in the appendix with acute exacerbations might result in a toxemia with gastric symptoms, and among them hematemesis. Twenty-four cases of fatal hemorrhage from the stomach, as reported from the London Hospital, by Hutchinson, are added as proof. Twenty-one cases were septic appendix cases. In these two acute ulcers of the stomach were found, one ulcer in the duodenum, with the rest having "hemorrhagic erosions."

To explain some of the other stomach symptoms that might arise from lesions outside of the stomach, the writer assumes the following hypothesis: There is some persisting chronic infective lesion in, as a rule, some abdominal organ, and that in this focus arise more acute infections from time to time, which cause those transient outbreaks in, and addition to, the symptoms which are sustained more quietly throughout the whole course of events.

"Whether," he states, "the more quiescent symptoms are due to a secondary infective gastritis, to an enhanced or erratic activity in the secretion of the gastric juice, to those irregular muscular conditions which are known as 'pylorospasm,' or to any combination of these, seems to be quite uncertain." The author believes that the most common site of the chronic infective area is the appendix. This is borne out by all of his recent study.

In answer to the second question, that of treatment, Mr. Moynihan believes that, if in the majority of the cases of "gastric ulcer" the stomach is not primarily affected, these dietetic cures, Lenhartz, etc., being surely dependent for their reason upon an accurate recognition of the morbid conditions they are intended to relieve, can be of very little value. However, he believes that, as only the medical failures and not the successes reach the surgeon, his view may be deflected by the greater weight of evidence coming from the one direction.

Speaking of gall-stones the writer disagrees with all the texts, which set forth that stones may be found in the gall-bladder without producing symptoms. He believes that they almost never exist without producing quite characteristic symptoms. Further, in looking over his case-histories for the last few years, he has found that in 25 per cent of the patients with stones in the common or hepatic ducts, there has never been a period of jaundice.

In diseases of the pancreas, the writer states that the living pathology is not as yet well understood. He recommends joining the gall-bladder to some part of the alimentary canal in almost all cases of obstruction to the common duct from a pathologic pancreas. In contradiction to the results in this country, he has as yet lost no cases, and the relief has been considerable.

He speaks of the liability of the pancreas to go on in its development of chronic induration long after the original cause, such as stones, has been removed, also the frequency of diabetes as the process progresses, urging therefore early operation.

On the whole, the address is very instructive and well worth careful study. F. A. Olson.

HODGKIN'S DISEASE AND SARCOMA OF THE CERVICAL GLANDS. A STUDY OF THE SURGICAL PATHOLOGY OF FORTY-THREE CASES

By J. M. Blackford, M. D., Rochester, Minn.

Surgery, Gynecology, and Obstetrics, January, 1912

Hodgkin's disease is defined clinically as a progressive and painless enlargement of the lymph-nodes, producing, or associated with, anemia; and later accompanied by enlargement of the spleen and liver, terminating in death.

Microscopically, the diagnosis of the condition is based upon the changes described by Dorothy Reed: (1) proliferation of large endothelioid cells, (2) production of numerous multinucleated giant cells, (3) progressive fibrosis, and (4) abundance of eosinophilic cells. No glands showing necrosis or invasion of surrounding tissue were included under the heading of Hodgkin's.

The microscopic picture, resembling so strongly a reaction to some irritant; the tendency toward recurrence after operation in the form of discrete glands; and the fact that the glands are definitely encapsulated and do not metastasize, all point to the possibility that the condition may represent the result, rather than the cause, of systemic disease.

On the other hand the author notes that the disease does show some of the characteristics of malignancy in that the glands recur after operation, that there is an associated anemia, and that the disease terminates in death.

The term *lymphosarcoma* is used to describe the most common type of primary sarcoma of the lymph-nodes. The microscopic picture suggests lymphoid tissue as the probable origin of the tumor, i. e., rather small, round cells with scant protoplasm, with nuclei showing marked metachromatism. Fibrosis is uniformly present and in some cases is very extensive. The glands are at first discrete, later fusing and invading the surrounding tissues. Clinically they do not often metastasize below the shoulder girdle.

In the case of tuberculous lymph-nodes, the writer does not believe that an opinion can be given with certainty unless caseation or tubercles are found, and if these conditions are not present, bacteriologic methods should be employed in making the diagnosis. Every specimen diagnosed as tuberculous showed areas of necrosis or caseation in at least one gland, so that the writer infers that "non-caseating tuberculous lymph-nodes removed surgically are apparently quite unusual."

The extensive and characteristic endothelial proliferation in tuberculous glands is believed to be an important diagnostic feature. The giant cells of tuberculosis differ from those of Hodgkin's disease in that they are larger, have nuclei peripherally arranged, and are surrounded by a zone of endothelial cells.

In only one-third of the cases was a positive correct diagnosis made by the clinicians, thus showing the difficulty of early clinical diagnosis.

The author concludes that—

1. Hodgkin's disease, lymphosarcoma, and tuberculosis present three different pathologic pictures, and run three distinct clinical courses, i. e., are probably three distinct entities.

2. Early clinical differential diagnosis between chronic adenitis, tuberculous, Hodgkin's disease, and lymphosarcoma is practically impossible.

3. While the advisability of radical surgical treatment of sarcoma or Hodgkin's disease may be questioned, yet in any case of doubt one or more glands should be excised and submitted to a competent pathologist.

4. Hodgkin's disease runs a slower course than sarcoma.

5. Hodgkin's disease is more common before the age of 35, and lymphosarcoma is more common after the age of 35.

6. The prognosis is very grave in both Hodgkin's disease and sarcoma of the cervical glands.

E. T. F. Richards.

A RÉSUMÉ OF ONE HUNDRED WASSERMANN TESTS

By John A. Roddy, M. D.

New York Medical Journal, September 23, 1911

The author calls attention to the value of the quantitative method of doing the Wassermann test. This is of value in certain types of cases, particularly those that have been treated.

He calls attention to the various types of blood which fall to the lot of the serologist. The review of the subsequent reactions following salvarsan contains nothing new or suggestive. His statistics of human blood which contains native amboceptors for sheep's blood (1 per cent) is absolutely in opposition to the findings of other observers. The usual percentage is 80 per cent to 90 per cent.

He tells at length of a serum containing fat (chyle?). Some observers claim that chyle does not influence the reaction.

The reviewer has had one chylous blood which gave a positive reaction. The patient had never had syphilis. Many subsequent observations of the blood on a fasting period, in order to avoid the chylous condition after eating, have always given a negative. Since then the reviewer has avoided taking blood after meals, or have centrifuged the blood to separate it from the chyle. H. L. Ulrich.

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NOVEMBER 15, 1912

URGENT NOTICE TO MINNESOTA SECRETARIES

The Secretary of the Minnesota State Medical Association, Dr. Thomas McDavitt, St. Paul, requests that all the secretaries of County and component Societies send the dues from all members to him before December 31, 1912. The termination of the fiscal year in December, instead of in April, was provided for at the Association meeting last August, and is in line with the resolutions adopted by the conference of State Secretaries on October 23-24.

At this conference the county, state, and national organizations adopted the report which provides for a uniform fiscal year to coincide with the calendar year. This change in the time of the collection of dues may be a little irksome just now, but it is quite imperative that it should be done, in order that the new year will start the Association with all of its available funds in the treasury, and the organization of the new year be carried out promptly.

The plan of having the fiscal year of the Association to coincide with the calendar year, originated in Minnesota, and Minnesota should set a good example to other states by showing that all of her dues were collected. This will mean also that the Secretary will provide a uniform system of blanks for both county and state organizations, and will, in the end, make the work of the individual secretaries less difficult and more automatic than it was before.

RESPONSIBILITY IN PRIVATE HOSPITALS

A very important medical legal case which went to the supreme court of North Dakota, has come back with the affirmation of a judgment for the plaintiff of $1,800 damages for a burn from a hot-water bottle. The defendant maintained a private hospital, and through the carelessness of a nurse, or some other employee, the patient, the plaintiff, who was operated on for appendicitis, was put in bed after the operation and was laid on a hotwater bottle. The result was a severe burn, and the supreme court finds that, as the patient was practically unconscious immediately after the operation, and either was, or was not, negligent in his after-treatment of himself, that the defendant who was the owner of the hospital, was liable as a master for acts of servants and nurses. This decision is a warning that all private hospitals should remember.

If such an injury or accident or negligence should occur in a hospital that is in part or wholly a charitable institution, it is hardly likely that a judgment could be secured against such an institution. The only reason is, that it is a public and presumably a non-paying institution, as against a private hospital that is maintained for gain.

It seemingly makes no difference what is done for the patient after the injury or the accident, because, as the judge says, "the cause of action arose as soon as the injuries were received," and the plaintiff's right of recovery was not defeated by any subsequent neglect to cure himself of the injury suffered.

Accidental burns in hospitals are rather more common than they should be; but if the patient is reasonable and able to appreciate the kindness and courtesy and fair treatment, there need be no occasion for legal action. Fortunately, such people predominate. On the other hand, there are a number of patients who are waiting for just such an occasion, and who take advantage of the situation, not only to evade the payment of their bills, but to get money out of the physician. Not infrequently people threaten the physician with legal attacks, because they are of evil disposition and are anxious to throw the responsibility upon others, but, more particularly, to save their money. This class is constitutionally opposed to paying their righteous debts, and the physician should not hesitate in beginning prompt legal action against them.

An accidental and occasional burn of a patient in a private hospital is usually sufficient to put both the physician and the nurse on their guard until some new nurse is brought into training who is unfamiliar with the strict rules of care and attention, or who proves herself careless and indifferent while in a position of trust.

There is no reason why any patient should be burned, except when unconscious, and when, in the hurry of treatment, the hot applications are not properly guarded.

Burns occasionally happen to nervous people, and to people who have nervous diseases associated with anesthesia, and here again the warning becomes imperative.

THE CONFERENCE OF STATE SECRETARIES

On October 23 and 24 thirty-nine secretaries of state medical associations met in Chicago to consider the subject of uniform regulation of membership in the state organization. Dr. Thomas McDavitt, secretary of the Minnesota Association, presided, and he also read a paper on "Remedies Proposed by the Committee," i. e., by the committee of the A. M. A. on Uniform Regulation. Other papers were presented and the subject was thoroughly discussed throughout the two days of the meeting. A committee on recommendations was appointed, and its report was unanimously adopted. The substance of this report and the action of the Conference was as follows:

That the fiscal year of each State Association correspond to the calendar year.

That dues in the component societies (county and district) be payable on January 1st of each year.

That the matter of prorating dues and the amount of dues be left to each component society.

That charters be issued to State Associations by the House of Delegates.

That the subject of uniform blanks and a uniform system of transfers be left to a future conference.

As important, simple, and objectionable as all these plans are, it is yet difficult to carry them out, and they cannot be carried out without the hearty co-operation of the State Associations and their component societies. We heartily commend them to the consideration of every reader of THE JOURNAL-LANCET.

BOOK NOTICES

PELLAGRA: History, Distribution, Diagnosis, Prognosis, Treatment, and Etiology. By Stewart R. Roberts, S. M., M. D. Cloth. Price, $2.50. C. V. Mosby Co., 1912.

In some parts of the world Pellagra dates back a good many years, in this country about thirty; and for the past twenty there has been considerable increase in the sections affected, but only recently has any effort been made to study it in a scientific manner. Many cases have been reported and much has been written in the current publications but little covering the disease as a whole has been printed. This work of Roberts, while short, covers the ground quite thoroughly and shows an exhaustive study of the various phases and problems of the disease, both here and abroad. The facts which are known are briefly and concisely stated, in many places tabulated, and the debated questions are well and impartially discussed from all points of view.

Roberts looks upon the disease, and rightly, as a general affection, and he classifies the symptoms under three general heads, those affecting the alimentary tract, those of the skin, and those of the nervous system.

After touching briefly on other organs and tissues slightly affected, the author takes up the diagnosis and prognosis.

Under treatment are inclined such things as diet. hygiene, and arsenic which usually lead to a recovery from the attack, if not to a cure. Mention is also made of experiments with Salvarsen and transfusion, but these are so recent that, although improvement has been noted in many cases, conclusions as to a cure cannot yet be drawn.

The book is entertainingly written and well illustrated. —IRVINE.

THE PRACTICAL MEDICINE SERIES. By G. P. Head, M. D., and C. L. Mix, A. M., M. D. Vol. V. Obstetrics, by J. B. DeLee and H. M. Stowe. The Year Book Publishers, Chicago, 1911.

This issue does not differ materially from those previously published. The subject matter is good and the reader can gain a good, concise review of the obstetrical literature for the preceding year.

It brings out the fact that in dealing with abortions it is wise not to have too much operative interference.

The use of the Momburg Tube for controlling post-partum hemorrhage has stimulated a great deal of investigation and writing. Two things are of importance. The attending obstetrician should prevent this form of hemorrhage as much as possible by the proper management of the third stage of labor. The second important fact is that he be ready to meet this emergency.

One of the most recent advances in the treatment of diseases of the new-born baby is the use of normal human blood serum in the treatment of hemorrhagic diseases.

The book is well worth reading if only to convince the reader that the science of obstetrics is not yet at a standstill.

A Collection of Papers Published Previous to 1909. By William J. Mayo and Charles H. Mayo. Two volumes. W. B. Saunders & Co., Philadelphia.

These two volumes of the surgical papers published by William J. and Charles H. Mayo previous to 1909 are very readable. They are written in the terse and interesting style which is already well known to nearly every reader of this review. They are all well printed on good paper and make two attractive volumes of about five hundred and six hundred papers, respectively.

The papers are grouped in related series and mark many points in the development of good surgery. From this standpoint they are of considerable historical value. But they are a very practical series of papers, and we have but to mention some of the special series to suggest their interest and their value. Under "Surgery of the Stomach," there are some twenty-six papers; under "Liver and Gall-Bladder" are some twenty more. The Pancreas, Intestine Sigmoid and Rectum,, Hernia, Genito-Urinary Organs (uterus, kidneys, etc.), Central Nervous System, Thyroid, Bones and Joints, and Addresses are some of the other subjects under which there are several or many papers.

A few of the special subjects treated will show the wide range of the papers. Under stomach, for example, such phases are dealt with as cicatricial stenosis, malignant obstruction, lymphatic involvement in cancer, complications following gastro-enterostomy, radical cure of cancer, chronic ulcer of stomach and duodenum, ulcer and cancer, the technic of gastrojejunostomy, the principles underlying the surgery of the stomach and associated viscera.

When one considers the wide field of experience and the high class of surgery which lies behind this work, a mere list of the titles of the papers in these two volumes should be sufficient to create a desire to possess them. Mann.

The Parasitic Amoebae of Man. By Charles F. Craig, M. D., Captain Medical Corps, U. S. A.; 250 pages, cloth bound, $2.50.

This is the first monograph in English which has been given to the profession, dealing with the amœbæ that are parasitic in man. Dr. Craig's association with the United States Army Corps has given him abundant opportunity to make a careful and scientific study of the amœbæ in a great number of tropical localities. The distinctive and highly valued feature of this book lies in the fact that the subject-matter is based upon nearly twelve years of study and observation of amebic dysentary, from a clinical, pathological, and autopsical standpoint.

Much of the work of Schaudinn has been verified and elaborated upon. The laboratory work as outlined in this text is very interesting and is a distinct advance over other works up to the present time.

One is almost lost and confused at the elaborate classification which such subjects seem to have during their evolutional stage. Dr. Craig's classification will no doubt be found erroneous as our knowledge of some forms of the amœbæ become more thoroughly worked out. The multiplicity of forms is confusing and tends to detract from the value of the work as an aid in clinical medicine. The majority of texts on this and similar subjects are interesting from a scientific standpoint, but are wholly lacking when applied to clinical medicine. Most of these are written by laboratory men who have no practical knowledge of the subject as applied to man, or at least have not carried their study to a point that makes it practicable. Dr. Craig's monograph escapes the criticism of this nature which can so justly be charged to many others.

A Manual of Auscultation and Percussion. By Austin Flint, M. D. L.L.D., Sixth Edition Revised and Enlarged. Lea & Febiger, Philadelphia.

The main part of this little book will never be out of date, and the student can still study it with benefit; however, the methods of physical diagnosis have so developed at the present time that the book is no longer complete enough to be more than a help in auscultation and percussion, and the student must necessarily possess larger and more complete works. The added chapters are so meager that they improve the work but slightly. Bradley.

NEWS ITEMS

Dr. C. E. Prudden will move from Virginia to Duluth.

Dr. E. R. Jellison has moved from Foley to Raymond.

Drs. Butchart and Morsman, of Hibbing, have dissolved partnership.

Dr. J. C. Charest, of Fargo, N. D., will locate in Thief River Falls, Wis.

Dr. John M. Riggs, of Buhl, has decided to give up practice at that place.

Dr. O. J. Brown, of Little Falls, is doing post-graduate work in New York City.

Dr. W. H. Replogle has purchased the practice of Dr. W. H. Lincoln, of Wabasha.

The Southside Sanitarium of Minneapolis has been moved to 1400 Ninth avenue south.

Dr. Joseph Smith, of Noonan, N. D., was married last month to Miss Lora Aird, of Wecota, S. D.

Dr. Fred Ewing, of Galesburg, Ill., has become associated with Dr. Iver C. Wiig, of Kenmare, N. D.

Dr. Joseph D. Lewis is now in charge of the eye, ear, nose, and throat work of the dispensary of the Minneapolis City Hospital.

A new district medical society was formed last month by the physicians of Gregory and Tripp Counties of South Dakota.

One of the buildings of the Pokegama Sanatorium was destroyed by fire on Nov. 1st, but the work of the institution will go on as usual.

Dr. P. E. Kierland, of Mahnomen, has purchased the practice of Dr. F. A. Gowdy at Harmony. Dr. Gowdy will located in Montana.

Dr. William Frisbie, who practiced in Blue Earth County for forty-five years, has become a member of the Soldiers' Home at Minnehaha Falls.

Dr. J. E. Farrell, of St. Paul, has become associated with Dr. J. P. Schneider, of Greene Isle, under the firm name of Drs. Schneider & Farrell.

Dr. George M. Tuttle, of New York City, died last month. He was the son of the late Rev. Dr. Tuttle, of Minneapolis, and was reared in this city.

Dr. John H. Rishmiller, of Minneapolis, was elected vice-president of the American Railway Surgical Association at its annual meeting held in Chicago last month.

Dr. A. C. Tanner has resigned from the staff of the Rood Hospital at Chisholm and moved to McGregor. Dr. W. G. Eisenman, of the Rood Hospital at Hibbing, succeeds Dr. Tanner.

Dr. C. A. Fjelstad, a graduate of Rush and a member of the staff of the Presbyterian Hospital of Chicago, has located at Red Wing and become associated with Dr. A. E. Johnson, of that city.

The new hospital building erected by Dr. Froshaug at Benson, has been leased to the Benson Hospital Association for five years, in order to make the hospital a public, and not a private, affair.

The Third District Society of South Dakota met at Lake Preston on Oct. 22d. Papers were read by Dr. B. T. Green, of Brookings; by Dr. H. H. Frudenfeld, of Madison; and by Dr. E. H. Grove, of Badger.

It is unfortunate in the extreme that charges of "niggardly economy" should have been made against a man of Dr. G. W. Beach's standing in a few weeks after taking charge of the State Sanitarium. The State Board of Control has been unable to find any justification whatever for the charges.

Dr. E. P. Quain, of Bismarck, N. D., contributes to the *Daily Tribune* of that city a comprehensive report of the North Dakota Commission to the International Congress on Hygiene and Demography. Dr. Quain's paper is exceedingly interesting and is a valuable contribution to the people of North Dakota.

The Clay-Becker (Minn.) and Cass County (N. D.) societies held a joint meeting at Moorhead on Oct. 28th. Dr. H. L. Ulrich, of Minneapolis, gave an illustrated address on "Modern Clinical Methods of Investigating Cardiovascular Conditions." Dr. L. C. Weeks, of Detroit, read a paper on "Intestinal Obstruction."

The General Electric Company of Minneapolis recently put at the disposal of the physicians and people of the city an instrument, called the pulmotor, which maintains artificial respiration automatically. The Union Light, Heat & Power Co., of Fargo, N. D., has done likewise for that city. This is highly commendable.

The Minnesota Association for the Prevention and Relief of Tuberculosis announces that the sale of Red Cross Christmas seals (stamps) will be discontinued after this year, although three-fourths of its income has come from this source. It is expected that the state legislature will appropriate funds to carry on the work after the present year. The Association appeals for and richly deserves a big sale of seals this year.

The Mower County Society held its annual meeting in Austin on Oct. 9th. Papers were read as follows: "The X-Ray in Fractures," by Dr. E. C. Rebman; "Backache," by Dr. C. C. Allen; "Typhoid Fever," by Dr. H. F. Pierson. The following officers were elected: President, Dr. P. T. Torkelson, Lyle; vice-president, Dr. C. C. Allen, Austin; secretary, Dr. E. C. Rebman, Austin; treasurer, Dr. J. F. Schottler, Dexter; delegate, Dr. H. F. Pierson, Austin; alternate, Dr. C. E. Henslin, Le Roy.

The Minnesota Academy of Medicine met at the Town and Country Club, Wednesday evening, the 6th inst. There were present 37 members and two guests. Dinner was served at 7 o'clock, and the Academy was called to order at 8:15 by President-elect Dr. L. A. Nippert. Dr. A. E. Benjamin reported a case of multilocular cyst, and described the operation for its removal. Dr. Mann reported an abdominal operation in which he found the fetal type of intestinal attachments. The Academy then listened to the President's address upon "The Etiology, Diagnosis, and Treatment of Acute Infections of the Pleura and Lung." Dr. J. E. Moore read a paper entitled "Prostatectomy, with Special Reference to the Sequelæ." The paper was discussed by Drs. Dennis, MacLaren, Nootnagel, Law, A. W. Abbott, Mann, Benjamin, Weston, and Carlaw. Dr. Moore summed up the discussion.

PHYSICIANS LICENSED AT THE OCTOBER (1912) EXAMINATION TO PRACTICE IN MINNESOTA

UPON EXAMINATION

Andres, Jr., John H.	U. of Penn.,	1911
Luck, Hilda	Barnes Med. Col.,	1905
Morrison, Angus W.	Johns Hopkins,	1910
Pratt, John A.	U. of Mich.,	1894

BY RECIPROCITY

Ahrens, Adolph H.	Hahnemann,	1910
Brimi, Carl L.	Rush,	1897
Dahl, John A.	Bennett,	1912
DeBoth, Edward R.	Rush,	1911
Evans, David J.	Rush,	1898
Fagerstrom, Albert H.	Marquette,	1912
Fleischmann, Chas. B.	Marquette,	1911
Gunderson, Harley J.	Northwestern,	1911
Hankee, Paul R.	Northwestern,	1910
McKenna, Jay K.	U. of Louisville,	1911
Martin, Edward T.	Marquette,	1911
Parmelee, Arthur H.	Rush,	1911
Pfeiler, Adam G.	Northwestern,	1910
Rheim, John E.	Northwestern,	1910
Rodda, Frederick C.	U. of Michigan,	1905
Shapiro, Emanuel Z.	Rush,	1911
Shields, Nicholas J.	Baltimore,	1898
Vollum, Edward O.	U. of Iowa,	1908

PRACTICE FOR SALE

An unopposed village and county practice goes to the purchaser of my residence. Good country; good pay; good schools, etc. Must be taken at once. Address G. G., care of this office.

A WALLACE BED FOR RENT

A Minneapolis Sunshine Society has an adjustable Wallace bed which they will rent at $2.00 a week or $5.00 a month. Address Mrs. L. M. S., 2006 Willow Ave. No., Minneapolis.

PRACTICE WANTED

I desire to buy in Southern Minnesota in a village of 1,500 or less a practice of at least $3,000. Have cash to pay for good place. Give full particulars in first letter. Address H. Z., care of this office.

SANITARIUM FOR SALE

Exceptional opportunity for bright, active physician or physicians to purchase a well-established revenue-earning sanitarium, located in a city of 45,000 and connected by a street-car line with city of 80,000 and having a large patronage from the range districts of Minnesota, Wisconsin, and Michigan. Address I. M., care of this office.

PRACTICE FOR SALE

A well-established practice in Western Minnesota. Best of territory. Railroad and insurance appointments alone will soon pay purchase price. Will sell residence if desired by purchaser. Am retiring permanently. This will bear investigation. Address S. L., care of this office.

PRACTICE FOR SALE

$3,500 practice in one of the best cities of 7,000 population in southern Minnesota. For a good all-round man this is the chance of a lifetime. Will stay and introduce purchaser. No real estate. Address C. O., care of this office.

PRACTICE FOR SALE

Unopposed village and country practice for sale near Twin Cities. Splendid opportunity to make money right from start; well-established practice, collections 98 per cent. I am going to the city. My complete stock of drugs, driving outfit, chair, and a number of other articles, all in first-class condition, go with practice for $500. Will introduce. Come and investigate. For further particulars, address B. A., care this office.

TRAINED NURSE ASSISTANT

Would like a position in Doctor's office. Will furnish reliable references. Address E. M., this office.

APPARATUS FOR SALE

One Chattanooga vibrator; 1 double-base sterilizer, 9x19x13; 1 compressed air tank with hand-pump; 1 rectifier; 3 static machines; 3 D. C. motors, 1-6, 1-4, and 1-2 h. p.; 1 arc light. Inquire of W. W. Christian, M. D., 638 Central Park; N. W. Tel., Cedar 6349, St. Paul.

ASSISTANTSHIP WANTED

Physician with two years' experience in general practice desires position as an assistant for four or five months. Address H. M., care of this office.

PRACTICE FOR SALE

A splendid practice in city of 1,000 population 50 miles from Twin Cities, will be turned over for a small consideration. Collections very good, fees very satisfactory; nice place to live; good school and churches. Particulars on application. Address T. H. Journal Lancet.

Doctor: If you want practical postgraduate work during fine season in the delightful city, write for particulars. New Orleans Polyclinic, P. O. Box 797, Postgraduate Medical Dept., Tulane University of Louisiana.

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF MINNESOTA FOR THE MONTH OF AUGUST, 1912

REPORTED FROM 82 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	1	1														
Albert Lea	4,500	6,192	3												1			
Alexandria	2,681	3,001	3											1				
Anoka	3,769	3,972	7													4		2
Austin	5,474	6,960	3													1		
Barnesville	1,326	1,353	0															
Bemidji	2,183	5,099	6	1										2				
Benson	1,525	1,677	0															
Blue Earth	2,900	2,319	1															
Brainerd	7.524	8,526	9													1		2
Breckenridge	1,282	1,840	1															
Canby	1,100	1,528	0															
Cannon Falls	1,239	1,385	0															
Chaska	2,165	2.050	0															
Chatfield	1,426	1,226	1															
Cloquet	3,074	7,031	5	1		1										1		
Crookston	5,359	7,559	3												1			1
Dawson	962	1,318	1															
Detroit	2,060	2.807	3	1														
Duluth	52,968	78,466	62	7		2					2			2	9	2		4
East Grand Forks	2.077	2.533	1															1
Ely	3,572	3,572	3	1											1			
Eveleth	2,752	7,036	4													1		
Fairmont	3,440	2,958	1															
Faribault	7,868	9.001	9		1		1								1	1	1	
Fergus Falls	6,072	6,887	10	1											1	1		1
Glencoe	1,788	1,788	0															
Granite Falls	1,454	1,454	*															
Hastings	3,811	3,983	5															2
Hutchinson	2.495	2,368	1															
International Falls		1,487	5															3
Jordan	1.270	1,151	0															
Lake City	3,142	3,142	3															1
Le Sueur	1,937	1,755	0															
Little Falls	5.774	6,078	3															1
Luverne	2,223	2,540	2			1												
Madison	1,336	1,811	4		1													
Mankato	10,559	10,365	5	1												1		
Marshall	2,088	2,152	3											1		1		
Melrose	2,591	2,591	1															1
Minneapolis	202,718	301.408	275	26	1	10	2		2		3			4	33	28		25
Montevideo	2.146	3,056	2			1												
Montgomery	979	1,267	3												2	1		
Moorhead	3,730	4,840	7										1		1	1		
Morris	1,934	1,685	1															
New Prague	1,228	1,551	0															
New Ulm	5,403	5,648	4												1			
Northfield	3,210	3,215	1															
Ortonville	1.247	1,774	2											1			1	
Owatonna	5,561	5,658	3															1
Pipestone	2.536	2,475	3		1													
Red Lake Falls	1.666	1,666	0															
Red Wing	7,525	9,048	10			2										1		2
Redwood Falls	1,661	1.666	0															
Renville	1,075	1,182	0															
Rochester	6,843	7.844	26	1											2	6		1
Rushford	1,100	1,011	2															
St. Charles	1,304	1.159	0															
St. Cloud	8,663	10,600	10	1												1		1
St. James	2.102	2,102	3													3		
St. Paul	163,632	214,744	192	21	4	3	1				1			5	31	12	1	15
St. Peter	4.302	4.176	2															1
Sauk Centre	2.154	2,154	4															
Shakopee	2,046	2,302	0															
Sleepy Eye	2,046	2,247	1															
South St. Paul	2,322	4.510	3	1											1			
Staples	1,504	2,558	1															
Stillwater	12,318	10,198	6															2
Thief River Falls	1,819	3,174	4	1												1		
Tower	1,111	1,111	*															
Tracy	1,911	1,826	2													2		
Two Harbors	3,278	4,990	5	1												1		
Virginia	2.962	10,473	6												1	1		
Wabasha	2,622	2.622	3			1												
Warren	1,276	1,613	2													1		1
Waseca	3.103	3,054	3															
Waterville	1,260	1,273	0															
West St. Paul	1,830	2,660	0															
Willmar	3,409	4.135	4															
Winona	19,714	18,583	20		1									2	1	3		3
Winthrop	813	1,043	0															
Worthington	2,386	2,385	2															

REPORTED FROM 54 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	0															
Aitkin	1,719	1,638	0															
Akeley			0															
Appleton	1,184	1,221	0															
Belle Plaine	1,121	1,204	0															
Biwabik		1,690	1															
Bovey		1,377	1															
Browns Valley	721	1,058	0															
Buffalo	1,040	1,227	2															
Caledonia	1,175	1,372	1															
Cass Lake	546	2,011	0															
Chisholm		7,684	3	1														1
Coleraine		1,613	0															
Delano	967	1,031	2															1
Farmington	733	1,024	0															
Fosston	864	1,055	1															
Frazee	1,000	1,645	2															1
Glenwood	1,116	2,161	0															
Grand Rapids	1,428	2,239	3													1		
Hibbing	2,481	8,832	4	1											1	1		1
Jackson	1,756	1,907	0															
Janesville	1,254	1,173	0															
Kenyon	1,202	1,237	1															
Lake Crystal	1,215	1,038	3					1							1			
Litchfield	2,280	2,333	6													3		1
Long Prairie	1,385	1,250	1															
Madelia	1,272	1,273	1															
Milaca	1,204	1,102	1													1		
Mountain Lake	959	1,081	1													1		
Nashwauk		2,080	3			1									1			
North Mankato	939	1,279	1															
North St. Paul	1,110	1,404	1													1		
Osakis	917	1,013	0															
Park Rapids	1,313	1,850	1															
Pelican Rapids	1,033	1,019	1															
Perham	1,182	1,376	1															
Pine City	993	1,258	4															1
Plainview	1,038	1,175	0															
Preston	1,278	1,193	1															
Princeton	1,319	1,555	4													1		
St. Louis Park	1,325	1,743	1															
Sandstone	1,189	1,818	1															
Sauk Rapids	1,391	1,745	0															
South Stillwater	1,422	1,343	1													1		
Springfield	1,511	1,482	0															
Spring Valley	1,770	1,817	0															
Wadena	1,520	1,820	1															
Wells	2,017	1,755	0															
West Minneapolis	2,250	3,022	3												1	1		
Wheaton	1,132	1,300	1															
White Bear Lake	1,288	1,505	2	1														
Windom	1,944	1,749	1															
Winnebago City	1,816	2,555	2			1										1		
Zumbrota	1,119	1,138	0															
STATE INSTITUTIONS																		
Anoka, Asylum			3	1														1
Faribault, School for Blind			0															
Faribault, School for Deaf			0															
Faribault, School for Feeble Minded			4	1														
Fergus Falls, Hospital for Insane			7	1														1
Hastings, Asylum			6	4														1
Minneapolis, Soldiers' Home			2															
Owatonna, School for Dependents			0															
Red Wing, State Training School			0															
Rochester, Hospital for Insane			2															
Sauk Centre, Home School for Girls			0															
St. Peter, Hospital for Insane			9	2	1													
St. Cloud, State Reformatory			0															
Stillwater, State Prison			0															
OTHER PARTS OF STATE			589	39	9	18	3	1			9	1	1	4	30	51	1	46
Total for state			1467	117	19	41	7	2	2	0	15	1	2	22	121	139	4	126

*No report received. Registrar not doing his duty.

144 stillbirths not included in above totals.

Right Food

supplies many a therapeutic lack, often missed in everyday practice.

For instance, as an adjunct to early treatment in cases of Habitual Constipation

Grape-Nuts

is of great value.

Physicians can determine this by prescribing it as a part of the diet (at least twice daily) during the more vigorous early treatment, and have the patient continue Grape-Nuts after medication ceases.

The result also proves the value of this food as a normal peristaltic and natural bowel antiseptic.

Careful and exhaustive clinical experiment has established this particular efficiency of Grape-Nuts beyond any question of doubt.

Grape-Nuts will not disturb the stomach, is most easily digested, and carries the full nourishing value of select Northern wheat and malted barley in quickly assimilable form.

The further fact that this food is procurable from any grocery at 15c the package, makes it a convenient as well as a useful adjunct.

"There's a Reason"

The *Clinical Record* for Physician's bedside use sent prepaid, to any Physician or Nurse who has not already received one. Also a box of samples of Postum, Grape-Nuts and Post-Toasties.

POSTUM CEREAL CO., LTD., BATTLE CREEK, MICH., U. S. A.

PUBLISHER'S DEPARTMENT

THE DIETZ DAINTY TAIL LAMP

The R. E. Dietz Company, which is the largest makers of lanterns in the world, think their "Dainty" just the lamp for doctors' buggies and automobiles. They are used by the tens of thousands, and they are the only absolutely reliable tail lamp using kerosene.

This lamp throws a clear light on the license number, and shows a ruby danger signal a thousand feet or more. It may be seen on motor cars in such widely separated places as South Africa, Egypt, India, Norway, Russia. In fact, tourists from America often see the familiar Dietz "Dainty" Tail Lamp in the most unexpected countries.

It may be had for kerosene alone or in combination with an electric bulb (per cut). A dependable tail lamp is a necessity for every physician.

See the Company's special offer made to physicians in their advertisement in our columns.

EXTENDING TO OTHER COUNTRIES

It is claimed that more "Storm Binders" are being sent out to every state in the Union, also to Canada, and even Mexico, than of any other make. This does not excite the least surprise on our part for from an extended experience with them we have come to regard them as well-nigh perfect. We have yet to see a patient to whom we have applied one that has not expressed the utmost satisfaction, even gratitude.—(Editor of *Mass. Medical Journal*, Aug., 1912.)

A CORRECTION

In a recent issue the conductor of this department made the statement that Dr. Grulee, of Chicago, had said in an address before the Hennepin County Medical Society that, under certain conditions, he prescribed "malted milk." Dr. Grulee informs us that we were in error in the quotation. What he said was that he sometimes used *malted food*, just as he would use any other dexterine maltose preparation.

SIMS MALTED WHEAT

In this issue we have the pleasure of welcoming into our clientele of advertisers the Sims Cereal Co., manufacturers of the above-named product. From their phenomenal growth, experienced since they first put this product on the market last July, we take this opportunity of expressing our hope that they may find our journal sufficiently productive to warrant the continuance of their advertising.

Ideal is the combination in a food product which gives us a palatable flavor, maximum nutriment, and healthful qualities.

Such a combination has been formulated in Sims Malted Wheat, the new breakfast cereal, which is prepared under the personal supervision of Mr. L. G. Sims, from the choice grains of our vast and fertile wheat fields, to which is added a scientifically prepared malt combination, giving to this already nutritious wheat an individuality of flavor never before attained in manufacturing a cereal food.

The healthful qualities of malt and wheat are too well established among medical men to require any commendation at this time. Suffice to say that the laxative and "aid-to-digestion" properties of this malt, give a combination which should be borne in mind when administering to convalescents, children, and nursing mothers.

The manufacturers of Sims Malted Wheat are offering to medical men a full-size trial package on request. Address 418 Andrus Bldg., Minneapolis.

WORK ON BACTERINS

Dr. G. H. Sherman, of Detroit, Mich., calls special attention to his new book on the practical application of bacterins, and to his 37 different preparations which are put up in glass-sealed ampules of 1 c.c. capacity, and are sold at a very low price.

Literature, etc., will be furnished upon application to Dr. Sherman.

THE MINNEAPOLIS MILK PROBLEM.

The milk supply of every large city is, under modern business methods, within the control of a very few dealers. Probably at the head of such dealers in Minneapolis is the Minneapolis Milk Co., which has, on previous occasions, announced its intention to co-operate with physicians to give the public the purest milk possible under existing conditions. This company now distributes the high-grade milk furnished under the supervision of the Hennepin County Medical Society, and it sells for general consumption a perfectly pasteurized milk in capped bottles.

A sense of duty to the public on the part of such companies and their co-operation with the medical profession will accomplish more in supplying pure milk than all the laws that can be made by state or municipality.

THE LAKE BREEZE SANATORIUM

The above institution located at Waukegan, Ill., is a department of the Lake County (Ill.) Tuberculosis Institute. It is situated near enough to Lake Michigan to obtain the benefit of the purity of the air near such a body of water and yet far enough away to be free from the rather severe winds prevalent near such a body of water.

The sanatorium is under the charge of a corps of specialists, and the climatic conditions in that latitude are superior for many cases to the conditions that prevail in Minnesota.

We believe the institution one well worth considering by medical men seeking the best obtainable care and climatic conditions for their tubercular patients. For full information, address Dr. W. H. Watterson, Manager, Waukegan, Ill.

THE YOUTH'S COMPANION FOR 1913

The Youth's Companion appeals to every interest of family life, from housekeeping to athletics. It begins with stories of youthful vim and vigor, with articles which disclose the secrets of successful play in the great games, with charming tales of life at the girls' colleges. But The Companion does not surrender these readers when they have entered the more serious paths of life. Mothers will welcome the page for little children and the weekly doctor's article. Fathers will find the important news of the day as it is, and not as it is rumored to be. The entire household will appreciate the sketches which touch gently on common foibles or caricature eccentricity. In short, for less than four cents a week The Companion brings into the home clean entertainment, pure inspiration, fine ideals, increase of knowledge.

Every new subscriber for 1913 will receive free all the issues for the remaining weeks of 1912; also, free, The Companion Window Transparency and Calendar for 1913, in rich, translucent colors—the most beautiful of all Companion souvenirs.—The Youth's Companion, Boston, Mass.

GROWTH IN THE USE OF BACTERINS

Treatment of infectious diseases with preparations derived from corresponding micro-organisms is unquestionably growing in favor. Not only do the bacterial vaccines (or bacterins) seem destined to a permanent place in therapeutics, but their field of applicability is constantly broadening. Proof of this is seen in the growing list of these products announced by Parke, Davis & Co., no less than fifteen of the bacterins now being offered to the profession.

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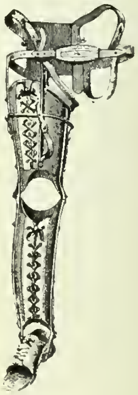

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TINNITUS AURIUM*

By Carl L. Larsen, M. D.

ST. PAUL

Tinnitus aurium, or subjective sounds in the ear, by virtue of its frequency and its distressing and often intractable character, is a subject full of practical interest, not only to the otologist, but also to the physician, the surgeon, and the general practitioner.

I present this paper, not with the hope of offering any new thoughts, but, rather, to create renewed interest in the most common, the most distressing, and the most neglected symptom in otology.

While we have made marked progress in otology during the past ten years, this symptom has received little or no recognition; in fact, the interest in this subject seems to have markedly diminshed. The symptom is one which may be dependent upon many and various disorders, both local and constitutional; yet it is often the only one complained of and the one from which the patient seeks relief.

In this brief discussion I shall dwell only on the subjective noises.

Localization.—In the great majority of cases, subjective noises are localized in the ear itself, but in many cases they are experienced within the head, in the occiput, in the temporal region, or on the vertex.

Character.—They may be either continuous or intermittent, and in either case vary greatly in their quality and intensity.

Most frequently they are experienced as roaring, buzzing, whizzing, hissing tones, ringing, humming, and whistling in the ear.

In regard to their character: Wilde says: "The peculiar character of the tinnitus and the noises to which it is likened are as variable as sound itself. I think the descriptions which patients give of the noise which they experience depends to a certain degree upon their fancy, their graphic powers of explanation, and, not infrequently, upon their rank in life, upon the position in which they have been placed, or the sound with which they are most familiar."

Their intensity is seldom uniform; there are usually marked variations, which depend on the diseased process itself, more often on external influences, such as changes of weather and temperature, great heat, wind, draughts, continuous rainy weather, and confinement in close, damp, or smoky rooms.

It is a well-known fact that tinnitus is often forgotten owing to diversion and occupation, which explains why many persons do not hear the noises during the day, while they become distinctly audible in quiet rooms and at night before going to sleep.

Children seldom complain of this annoying symptom.

Subjective noises become more endurable when there is a healthy condition of the body, when the mind is at ease, in individuals who have a happy disposition, and in pleasant, clear weather.

It is often surprising to note how comfortably some patients endure the noises, while others suffer greatly, and some are driven to insanity or suicide.

Frequency.—Politzer estimates that over two-thirds of ear diseases are accompanied at some stage by tinnitus.

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*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

Eitelberg reports 300 cases; 114 suffered from continuous tinnitus, and 69 from intermittent.

Kramer noticed this symptom 1,267 times in 2,000 cases. Wilde, in 300 cases, found the symptom in 182, only 58 being free; the remaining 60 cases were not determined.

In a series of 100 cases I found tinnitus in 83.

Etiology.—According to Hartman most cases of tinnitus are due to one or two generic causes, either to some lesion or interference with the function of the sound-perceiving apparatus, the labyrinth, nerve, or brain center, or to some lesion or other cause interfering with the sound-conducting apparatus. Rumbold gives a still more definite classification. He groups them in two classes:

1. *Muscular,* or those produced by the action of diseased muscles of the middle ear, producing vibration by series of alternate contraction and relaxation.

2. *Vascular,* or those caused by the flow of blood through the irregularly calibered blood-vessels of the internal ear, or of those in its neighborhood, producing vibrations by the passage of the blood through the abnormal vessels.

This nomenclature will locate each kind of sound, give its origin, and, at the same time, describe the kind of sound meant.

In the group of those cases due to some interference with the sound-conducting apparatus, we include obstruction to the external auditory canal by impacted cerumen, foreign body or inflammation, disease of the membrana tympani, obstruction to the Eustachian tube, purulent and catarrhal disease of the middle ear.

Of these, I believe tinnitus is the most frequent and most distressing in tubal obstruction.

It is a curious fact that in purulent disease of the middle ear the noises almost invariably cause little trouble to the patient.

In uncomplicated affections of the sound-perceiving apparatus, whether this be situated in the membranous cochlea or in the associated nerve structures, tinnitus is not usually a predominant symptom.

The very severe cases of tinnitus are undoubtedly those in which the patient is suffering from otosclerosis with fixation of the stapes, and in which it is quite possible that there may be associated changes in the nerve structure of the cochlea.

While these cases are usually unilateral at the commencement, they almost invariably become bilateral later.

While most cases of tinnitus are always associated with varying degrees of deafness, there are surprisingly many in which the hearing is normal. Politzer has designated these by the term "reflex or nervous tinnitus." It is these cases that prove a bugbear to the otologist or to the physician who attempts to treat them.

I have been surprised at the great percentage of these cases, where, even after a complete examination of the ears and the entire body, no cause was demonstrable; in fact, a great many of such patients seem in perfect health.

These cases of reflex tinnitus, for the sake of convenience, I have divided into two classes:

1. Those of probably pure neurotic origin.

2. Those due to general conditions, such as arteriosclerosis, diabetes, disease of the central nervous system, anemia, digestive disturbances, pelvic disease, and aneurism.

In the first group, while we know that tinnitus may be either the cause or the effect of neurasthenia, there can be no doubt that many so-called neurasthenics do suffer from this symptom, and repeated examinations reveal no organic change. However, I am inclined to believe that this, like all other symptoms, is too often laid to that convenient and much-abused term "nervous break-down."

That tinnitus does occur in patients suffering from grief, worry, or mental exertion, many of whom are neurasthenics, and in many functional disorders of the nervous system in which the auditory nerves share and sympathize, is a well-established fact.

In the second group, tinnitus is in all probability often the first warning of many general diseases, particularly the various heart lesions, nephritis, anemia, and organic disease of the nervous system.

I wish to emphasize especially the relation of tinnitus to altered blood-pressure, either increased blood-pressure, as in arteriosclerosis, or diminished, as in anemia.

Tinnitus occurring during the course of acute circulatory changes is not so common. Among diseases of the nervous system the most common are brain tumor,—especially cerebellar pontine angle tumor,—cerebrospinal lues, general paresis, and multiple sclerosis.

In the large European ear clinics I was impressed by the frequency of tinnitus in syphilis of the nervous system.

I might add to this class also those due to enlarged and diseased tonsils, obstruction to nasal breathing caused by adenoids, deviated septum, enlarged turbinates, etc., although these may be the forerunners of an interference with sound-conduction, even though no impairment of hearing be present.

Recently some authors have laid considerable stress on the probability of some cases of tinnitus being of dental origin.

Diagnosis.—From this brief discussion it is evident to you all that exact diagnosis is of utmost importance, for what symptom has more causes?

It is our first duty in every case to make a thorough examination of the ear by all the subjective and objective methods at our command, to obtain a complete history of the case, the character of the sound, the evidence of disease in other parts of the body, particularly as to the presence of circulatory disturbances, blood dyscrasias, or disease of the nervous system.

From the average patient one can elicit whether the sound is unilateral or bilateral, constant or intermittent, pulsating or uniform, of high or low pitch, whether the noises vary in intensity, at what time of day the trouble is most marked, how it is influenced by physical exercise, rest, ingestion of a full meal, etc.

The pitch of the noise, which is best revealed by the tuning forks, is occasionally an aid to diagnosis. Panse believes that in all cases of pure conduction-interference the sound will be low, while high sounds are suggestive of inner-ear involvement.

The particular form of the sound, whether muscular or vascular, will often aid us in drawing our conclusions; thus, if extrinsic noises have a controlling influence upon the ear sounds, it is a positive proof that all such persons are affected with muscular tinnitus aurium, and that in all probability there is some interference with the sound-conducting apparatus. Patients will often tell you that they hear a conversation in a railway coach or a noisy room much better than in a quiet place, showing the influence of extrinsic noises.

Vascular tinnitus aurium or the sound formed in the internal ear and its neighborhood will not be affected by extrinsic noise.

A careful examination of the nose and throat in no case should be omitted.

When a patient suffers from tinnitus with no impairment of hearing, and no cause is elicited after a complete examination of the ears, nose, and throat, it is our duty to make a thorough physical examination, ascertaining the blood-pressure, examination of the blood, and urine analysis.

The same is true in reference to examination of the nervous system, and in these cases the co-operation of a competent internist and neurologist is often indispensable.

Prognosis.—As with all other symptoms the prognosis is dependent upon the cause, the character, and the extent to which it is removable.

If it is continuous and severe, and has existed for a long time, the chances of its disappearance are very doubtful.

When due to obstruction to the auditory canal, disease of the membrana tympani, or to catarrhal and purulent disease of the Eustachian tube and the middle ear, the cure of these conditions usually brings about a cessation of the noises. It is in these cases that we obtain our best results.

In the class of cases associated with otosclerosis and disease of the auditory nerve, the prognosis is not good.

Of the general conditions, such as anemia and arteriosclerosis, and disease of the nervous system, marked improvement and even a cure often results from proper treatment of the underlying condition.

As to the prognosis in tinnitus of neurotic origin: Much will depend upon the patient's disposition, occupation, and environment.

Treatment.—In the brief time allotted me it will be impossible to go into a full discussion of the treatment of tinnitus, because, as we have seen, we are dealing with a symptom of many causes, and, as with all other symptoms, the cause must be ascertained.

We may divide the treatment of tinnitus into two forms:

1. *Medical:*
    a. Local.
    b. General.
2. *Surgical.*

Local.—When tinnitus is due to impacted cerumen, or to any obstruction or inflammation in the auditory canal, suitable treatment usually gives prompt relief. In disease of the Eustachian tube, inflation by Politzer's method, catheterization, the use of bougies, the application of vapors and various medicaments, together with the removal of the cause, which is usually some form of nasal obstruction, will in the majority of cases prove a prompt and effective measure. Occasionally, however, we meet with a case of this kind that does not respond to treatment, or where the relief is only temporary, exacerbations occurring from taking cold or often without any apparent cause. Many of these cases undoubtedly become neurasthenics.

When tinnitus is due to catarrhal and purulent diseases of the middle ear, remedies applicable to each case, with which you are all familiar, are usually adequate to cause an amelioration or cessation of the tinnitus.

It is this group of cases which is most amenable to treatment.

When the lesion is found to be due to otosclerosis, involvement of the auditory nerve, brain lesions, or by the formation of new connective tissue in the tympanic cavity, local treatment usually proves ineffectual.

External applications to the neighborhood of the ear, as advocated by Politzer, Urbantschitsch, and others, have only a mitigating effect, their influence being largely psychical.

Pneumatic massage and electricity, which in past years occupied a prominent part in the treatment of certain forms of tinnitus, has proved successful only in a limited number of cases.

Cases which are dependent directly on adhesive changes in the middle ear can often be relieved by massage to the ossicles and drum membrane.

Most authors of today are agreed that electricity in its various forms has little or no effect upon tinnitus, and in many cases has proved detrimental.

Lucae describes interesting results from the action of tuning forks upon the action of noises, —the so-called *Ton-Behandlung*. If the sounds are high-pitched, a deep-toned tuning fork (C or C^1) is employed; if low-pitched, a high-toned tuning fork (C^3 or C^4) is used. The vibrating fork is applied either by placing the end of its handle in the external meatus, or, in order to augment the sound, the vibrations are passed through a resonator, which is fixed into the ear.

The duration of the application may extend from one to five minutes, and in order to insure a continuous sound the tuning fork may be connected with a magneto-electric apparatus.

The result from this form of treatment is usually only temporary, but repeated temporary relief often does much to encourage these cases and aid us in bringing about an ultimate cure.

General.—I wish to impress upon you the importance of a most careful inquiry into the patient's mode of living and his habits and environment. Especially is this true in cases where no oral defect is found, or where there exists no accompanying deafness.

When due to anemia, disease of the circulatory or digestive systems, or pelvic disease, the patient should be placed under the care of a competent physician or surgeon. In the so-called neurotic cases the usual treatment, consisting of fresh air, tonics, change of surroundings, etc., is indicated.

The injudicious use of sedatives and hypnotics is to be deprecated; there are, however, cases where the use of bromides or mild sedatives is distinctly indicated, i. e., in patients who are unable to obtain rest at night.

Of late fibrolysin or thiosinamine, the so-called "solvent of pathological fibrous tissue," has been used a great deal in the German clinics with various results, particularly in otosclerosis, fixation of the ossicles, adhesions and indurations of the tympanic cavity.

The prolonged use of phosphorus, as advocated by Sibenmann in otosclerosis, has met with little success.

Pilocarpine as an absorbent in intralabyrinthine and intracranial disease still has its indications.

Are iodides often indicated in the treatment of tinnitus? In the forms associated with vertigo, especially those due to acute labyrinthine or intracranial disease, even where there is no evidence of syphilitic disease, their use may be a distinct advantage.

Of great importance in all cases of tinnitus is the abstinence from stimulants, as alcohol, tobacco, tea, and coffee, and strict attention should be given to the regulation of the bowels.

Lastly, a sojourn in a dry, bracing, inland, and not too cold, climate is often of decided benefit.

Surgical. — Many operative procedures have been advocated for the relief of tinnitus, but few merit any consideration in this discussion.

It is needless to state that radical surgical interference should be considered only as a last resort, and then only in the severe cases associated with vertigo where the ordinary methods of treatment have failed.

The various operations performed are intranasal operations, lumbar puncture, ligation of the carotid, ossilectomy, division of the tensor tympani tendon, section of the posterior fold of the membrane, destruction of the cochlea, and division of the auditory nerve.

In discussing the local treatment of tinnitus, I briefly alluded to the removal of nasal obstructions. For the most part these consist of enlarged tonsils and adenoids, hypertrophied inferior turbinates, deviated septum, and spurs of the vomer which touch or are adherent to the outer nasal wall. In a vast majority of cases these no doubt act as a forerunner of a disease of the Eustachian tube or middle ear. There are, however, cases caused reflexly by intranasal conditions, hence the importance of making a thorough and complete examination of the nose and throat.

In 1904 Babinski published an article on lumbar puncture as a relief in severe cases of tinnitus. This has not met the unanimous approval of our leading otologists. Opinions differ as to whether it is the removal of the cerebrospinal fluid acting as a direct influence upon the deep roots of nuclei in the auditory tract or whether it is the blood-pressure that is affected by this puncture. In the Vienna clinics lumbar puncture is occasionally performed when the tinnitus is severe and accompanied by vertigo.

Division of the tensor tympani tendon, section of the posterior fold of the membrane, and ossilectomy are operations which have fallen largely into disuse, owing to the fact that we have obtained as good results from non-operative measures.

Ligation of the carotid is mentioned only to be condemned as a useless procedure.

Ablation of the end-organ has been successfully accomplished in only a few cases, and except in acute labyrinthine suppuration it would seem to me that the indications for this operation are decidedly limited.

I have been able to find the report of eight cases of division of the auditory nerve, with three deaths, two failures, and success in three.

When we consider that the radical operations are attended not only with destruction of hearing but with danger to life, and that the most severe cases are invariably bilateral, it would seem that only with the rarest exceptions should these extreme measures be resorted to.

In conclusion, let us ever be mindful of the fact that even severe tinnitus may, in the course of time, abate or become bearable.

I wish to emphasize the importance of encouraging these sufferers in every conceivable way, as I know of no symptom which is so quickly accompanied by discouragement and mental depression as tinnitus.

In order to illustrate how varied the causes of tinnitus may be, how quickly some cases respond to treatment, while others resist every form of treatment, whether the cause be demonstrable or not, I wish briefly to report five cases.

CASES

CASE 1.—Patient, female, aged 46, seen in May, 1911. Had continuous tinnitus in the left ear, associated with headache, for the previous four months, following an attack of influenza.

Examination of the ears, negative. Examination of the nose revealed a purulent disease of the sphenoidal sinus.

I removed the entire middle turbinate and the anterior wall of the sinus. One week following the operation the headache and tinnitus disappeared. There has been no recurrence.

CASE 2.—Patient, female, aged 18, seen in August, 1911. Unilateral tinnitus of a pulsating character for six months.

Examination of the ears, negative. Examination of the blood revealed a simple anemia. Treatment consisted of nourishing food and iron, which brought about a cessation of the tinnitus in two months.

CASE 3.—Patient, female, aged 65, seen in September, 1911. Bilateral tinnitus associated with slight vertigo occurring intermittently for the past year.

Has lost fifteen pounds in weight and appears very anemic.

Examination of the ears, nose, and throat, negative. Hemaglobin, 50 per cent; blood-pressure, 175. Examination of the urine showed a chronic parenchymatous nephritis.

By the use of tonics and good food she regained her weight; hemaglobin increased to 80 per cent, the vertigo has entirely disappeared, with the tinnitus occurring only occasionally.

CASE 4.—Patient, male, aged 48, seen in July, 1911. Bilateral tinnitus associated with marked vertigo for the past year. No possible cause could be found, and the patient seemed in perfect health. Lumbar puncture performed in October, 1911, with great relief for four months.

At the present time (June, 1912) the vertigo is again very troublesome, though not nearly so marked as previous to the lumbar puncture.

The tinnitus is now only of occasional occurrence. Patient is considering another puncture.

CASE 5.—Patient, male, aged 41, seen in April, 1911. Complained of unilateral tinnitus, which had existed intermittently for the past year.

The noise was humming in character and appeared much worse at night, so that very often his sleep was interfered with. Examination revealed normal hearing for conversational voice, and but a slight diminution for the whispered voice on the left ear. Tuning-fork tests revealed no aural disease.

Both drums normal in appearance. Examination of the nose showed a deviated septum, with a slight impermeability of the Eustachian tube on that side.

The logical diagnosis was slight tubal obstruction. A submucous resection of the septum was advised and consented to. Following this, catheterization with the use of bougies was employed, with considerable relief for a period of about a month. I did not see the patient again for two months, at which time the tinnitus had returned with increased severity.

Patient now appeared very melancholic. I advised him to take a vacation in the country or go to a sanitarium. I did not see the patient again, but learned from his family physician that he became very despondent.

He finally went to a sanitarium and later committed suicide.

I feel convinced that his tinnitus brought on melancholia.

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DISCUSSION

Dr. D. L. Tilderquist (Duluth): The subject which Dr. Larsen has handled is one that concerns a particularly difficult field, and I am well pleased with the emphasis which he has given to the etiology of tinnitus aurium. Those who work in special fields have constantly to fight the tendency to forget the general condition of the patient and investigate only the local conditions in any particular case. So with the noises in the ear; we are apt to forget that the ear is a part of a complex organism and that in this particular case the symptoms are very apt to be influenced by general conditions of which the condition in the ear is a local manifestation. This was particularly impressed upon me some time ago when a lady patient, of middle age, came to me complaining of noises. She said she had noises in the head. She did not localize these in the ear, but said they "were in the head." Patients with very definite ear lesions also fail sometimes to localize the noise. I examined her ears very carefully, and found her hearing to be normal to all tests. The Eustachian tubes were open, and I found absolutely nothing which would give a local cause for the noises. She had been treated by a local physician previous to this. I met the doctor later and spoke to him regarding her condition. He told me he was satisfied that her case was one of beginning insanity. When I thought of it afterwards it looked plausible, as her manner of speaking and her ideas pointed that way, although it did not occur to me at the time. While noises, undoubtedly, may cause insanity, there must have been a predisposition to the insanity previous to the onset of these noises.

Another thought that occurred to me in listening to the paper was this, that a good deal of emphasis was given to local conditions outside of the internal ear. This is really the field where we can hope to accomplish something. The results of treatment for noises in the ears are often very discouraging, and we are apt, when we get a case of this kind, to pass it on to some other practitioner with the feeling that we cannot do anything, while careful investigation of the noises, of the throat and Eustachian tube, and of the middle ear, may reveal something by which we can give relief to a case which seems otherwise hopeless.

Dr. N. G. Mortensen (St. Paul): I would like to ask Dr. Larsen if he found symptoms of beginning meningitis in any of these cases. We had three cases in young children at the hospital with symptoms of meningitis. They came and asked me if I found any "bugs" in the ears. I had two specialists examine these cases, and all three were tubercular. Within four or five days from the time I saw them they developed fever, and died of tubercular meningitis inside of three weeks.

There were two cases of anterior poliomyelitis, which I studied carefully. They began with the same symptoms three or four days before the anterior poliomyelitis started in. I have also had the case of a little girl, eight years of age, whose parents were very ignorant. They wanted me to help her hearing. I examined the ears but could find nothing the matter with them. This child subsequently developed cerebrospinal meningitis of the epidemic type, and died inside of three days.

I would like to ask whether tinnitus aurium is one of the symptoms of beginning meningitis before the fever.

Dr. George C. Dittman (St. Paul): The question which interests us most in connection with this particular subject is the treatment, and while the variety of causes for the subjective noises offers a wide field for discussion, the subject of tinnitus itself is comparatively limited. Of the many noises described by patients, I believe they can be sifted down to two, high- and low-pitched ones. It is the low-pitched ones which, in my experience, when limited or associated with tubal inflammation or nasal or nasopharyngeal disease, offer the best prognosis. The form of treatment which I have used in this variety of cases is the direct application of a two to five per cent silver nitrate into the Eustachian tube, applied by the Eustachian bougie, that is, dipping it in a solution and inserting it in the usual manner through the catheter.

I have in mind one case, that of a man between fifty-five and sixty years of age, who complained of a sound resembling that of a woodpecker. I could get nothing from his personal history. I put him on potassium iodide, and in a short time he improved. It is well to mention the fact that he had a blood-pressure of 180, and with no albumin in the urine or other pathologic condition.

It has been stated that the stapes has something to do with the tinnitus, and some forms of treatment have been advocated for that, and with that point in view I have endeavored to treat the tinnitus by using an air-pressure of ten to fifteen pounds through the Eustachian tube. I have done this by packing the auditory canal with cotton up to the drum, but not too tight, and taking the air directly from the building in which it is supplied, injecting it through the Eustachian catheter. But in conjunction with all forms of treatment it is advisable to distract the patient's attention from his condition and endeavor to get his mind upon some other lines.

Dr. William R. Murray (Minneapolis): There are two points I would like to refer to briefly in connection with the subject of tinnitus aurium. The first is in regard to the prognosis, and the second point I would refer to is in reference to cases of objective tinnitus, which I believe Dr. Larsen did not mention in his paper.

In regard to the prognosis: Subjective tinnitus aurium is one of the most frequent accompaniments of involvement of the middle and internal ear, and when it occurs in connection with the acute cases the prognosis is usually good, because when you remove the underlying causes the tinnitus disappears. When occurring in chronic cases the prognosis must be guarded, and our ability to remove the tinnitus will depend upon whether or not we can overcome the underlying and contributing causes and whether we can relieve the pathological changes that have already taken place within the tympanum. It must be recognized, as the essayist has stated, that these cases of subjective tinnitus are not always due to the morbid processes within the middle or internal ear. The tinnitus may be due to circulatory or systemic disturbances.

In regard to the second point, namely, cases of objective tinnitus where the sounds are not only heard by the patient, but may also be heard by the observer. Such cases are somewhat rare but a considerable number of them have been reported. Within the past few months I examined a young man who was subject to attacks of melancholia, and who complained of incessant clicking sounds in his ears and stated that others had also heard them. This was true, and I was able to detect the presence of these sounds without the aid of an auscultation-tube. The prognosis in this form of tinnitus is especially bad.

Objective tinnitus may be divided into two classes: first, tinnitus due to the spasmodic action of small muscles in the tympanum and Eustachian tube (the tensor tympani and tensor palati); and, second, tinnitus due to circulatory causes where the noises are constant, loud, and very distressing.

The points I wished to emphasize are, first, that our prognosis should be guarded as to our ability to relieve tinnitus aurium when chronic, and, second, that cases of objective tinnitus do sometimes occur.

Dr. Larsen (closing): I regret very much my paper was of such a length that I could not discuss the surgical treatment of tinnitus aurium. It was my purpose to refrain from speaking about objective tinnitus, owing to the brief time allotted to me.

In regard to tinnitus being an early symptom of meningeal affections: I am not prepared to make a statement in that regard. We do know it does occur in the course of cerebrospinal irritation and also in meningeal irritation. One thing we ought to remember is, that no matter how severe the tinnitus may be, there is a possibility of its abating or becoming bearable by the patient.

EXTRACTION OF THE LENS IN ITS CAPSULE—THE SMITH OPERATION*

By John C. Harding, M. D.

ST. PAUL

Extraction of the lens in its capsule (the Smith operation) has attracted so much attention that I trust a short review, together with my own experiences in India, where I performed over two hundred operations under Col. Smith's personal direction, will be of more than ordinary interest.

Couching was the first operation performed for cataract. The ancients, from a mistaken idea of the anatomy and pathology of cataract, depressed the lens into the vitreous. Daviel, in the year 1750, incised the cornea, lacerated the capsule, and expressed the lens. With slight modification it is the ordinary way of doing the operation today. Prior to Daviel there were cases reported where the cornea was incised to evacuate a lens that was dislocated into the anterior chamber. Pagenstecher was perhaps the first to advocate a method of extraction in capsule. He incised the cornea in the ordinary manner, and, after entering a spoon behind the lens, exerted pressure upon the cornea. He was forced to abandon the procedure, however, because of the enormous loss of vitreous. With the published successes of Col. Smith the Pagenstecher operation has been revived and claims of priority made, but I am sure anyone who has seen the intracapsular operation performed by Col. Smith, or one of his pupils, will agree that it is an entirely different procedure. Col. Smith has performed between thirty and forty thousand cataract extractions, and his marvelous results have stimulated investigators all over the world. The work of Greene, of Dayton, Ohio, and Vail, of Cincinnati, is especially to be commended.

I am frequently asked, "Who is Col. Smith?" "Where do his patients come from?" "Are the natives of India more prone to cataract than we are, and, if so, what is the cause?" Col. Smith is an English army surgeon. He is attached to the Indian Medical Service and is known as a civil surgeon. India is divided into districts of variable area, but, ordinarily, with a population of between one and two million people each. The larger cities have a hospital with the Civil Surgeon in charge. Besides his hospital work, he is health officer, superintendent of the jail, vaccination officer, court surgeon, etc. He is not attached to troops and is not called upon for service except in case of war. The population of India is between three and four hundred million. Its area is greater than that of the whole of Europe. The patients come from all over the Empire. I saw patients from Burmah, Bombay, and Calcutta, but the majority, of course, are from the Punjab. The natives of India are surely more prone to cataract than we are. It is the common affection all over India, but I am told there is a higher percentage among the tribes of the northern and central districts. The tropical sun and heat, heredity, water, and malnutrition are undoubtedly the cause of the large number of cataracts in India. The foreign population does not seem to be affected in a larger per cent than it is in Europe. The natives, except the mercantile class, are raw-boned and do not appear to have an ounce of superfluous fat. Except the brown color, they look like us. They are Aryans. They have syphilis, gonorrhea, tuberculosis, and malignant growths, as we do. They do not use intoxicating liquors, and their diet is largely fruits and vegetables. They look much older than they are, and I should think the average age of the cataract patient in India is ten years younger than the average American patient. It is because of this difference of ages, with more resisting power, that convalescence is shorter.

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*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

The hospital at Amritsur has one hundred and twenty beds, but during cataract season cots were placed upon the wide verandas so that it was possible to accommodate about six hundred. There were three native assistant surgeons. They give an anesthetic and assist in the major operations, as do the residents in our own hospitals. The superintendent of nurses is European. She has three native women assistants. They have no such thing as nursing, as we look upon it. The friends of the patients camp around the hospital and attend to their wants. I was told that perhaps 20 per cent came without friends, so had to be fed by the hospital nurses. It is a fact that the cataract cases do so well that practically no medical attention or nursing is needed.

The operating-room is large, and four tables were used. As the assistant surgeons prepared the patients and applied the bandages, the work was exceedingly rapid. The largest number of extractions performed by me in one morning was twenty-eight. The same morning, because Col. Smith had other important work, I operated on fifteen glaucomas.

Cataracts in India are operated on in the spring and autumn. Seasons of two months each are taken because, during these periods, the natives have little work to perform and can take care of relatives with less hardships. I think that at least 80 per cent of the patients have trachoma, but, unless in the acute stage or with trichiasis, they are immediately operated on. There is no waiting-room, and the patients squat upon the floor of the operating-room until placed upon the table. I have seen a hundred at a time, and one had to be careful in walking around or he would step on someone.

Cocaine is used for local anesthesia. The face is washed and the outer third of the eyelashes of the upper lid cut. Previous to operating, the eye is given a forcible douche of bichloride, one to four thousand. The douche is used for its mechanical effect, the bichloride added to make sure the solution is aseptic. The incision is entirely corneal and embraces a trifle less than half the circumference. The handle of the knife, after the counter puncture, is lowered, and the knife driven to the heel, thus making an even cut. The cut is necessarily even, and we do not get the irregularity with subsequent astigmatism as is the case where the sawing movement is made. Iridectomy is performed by resting one blade of the iris forceps in the incision while the other blade gently presses the cornea, forcing the iris out. You are less liable to rupture the capsule by this ingenious method, and one less instrument has entered the eye. The speculum is now removed and the assistant takes charge of the lids. Surely in no eye operation does the assistant play as important a part, for upon his ability to control the lids depends chiefly the success of the operation. The assistant always stands upon the left side. With gauze around the thumb to prevent slipping, he pulls down the lower lid, the rest of the hand being spread over the face to steady and hold the patient if he becomes unruly. The upper lid is held up with a strabismus hook, the middle and ring fingers at the same time lifting backwards the brow to prevent contraction of the orbicularis.

With an immature cataract the operator makes pressure with the point of a strabismus hook at the junction of the middle with the lower third of the cornea. This dislocates the lens above, and it tilts forward, presenting itself in the wound. With pressure continued, with slight upward movement, the cornea can be tucked under the lens, giving it support during expression.

With a matured cataract the lens is much swollen, and there the pressure should be made over the ciliary ridge toward the feet. The lens thus dislocates below the inferior border presenting in the wound. Col. Smith calls them "tumblers." The advantage of having the lens turn somersault lies in the fact of having only an upper attachment in case the capsule ruptures during delivery. After a lens has tumbled the pressure is exerted, as with the immature, though rather more care should be exercised to prevent rupture of the capsule. We never attempt to make the immature lens turn somersault because of its firmness. With delivery of the lens, the iris is replaced, especial care being used to free the angles of the wound. A light bandage is applied, and, unless complications arise, it is not removed for ten days.

ADVANTAGES

1. You can operate at any stage, the immature lens being easier to remove than the mature. The anxiety and worrying due to partial blindness over an extended period, together with the financial loss from being unable to follow the usual vocation, is entirely obviated.

2. Infrequency of iritis. Of the several hundred extractions performed by Col. Smith and myself at the Amritsur Hospital, there were but three cases of iritis. One, an Englishman with a specific history, had two iridectomies performed before he came to the Smith clinic. He had seclusion and occlusion of the pupil following recurrent iritis.

3. A complete operation. You remove the entire lens and capsule.

4. No needling or secondary operation. Iritis after extraction and following needling is undoubtedly due to the chemical and mechanical action of the liberated cortical matter, the lens capsule acting as a foreign body.

5. No tags of capsule to retard healing, a frequent cause of sepsis.

6. Less instruments in the eye.

7. Short convalescence.

8. Better visual acuity. The Smith operation is adapted to all varieties of cataract in elderly people, but it is not advisable to operate upon juveniles because of the firmness of the suspensory ligament.

CLAIMED DISADVANTAGES

1. Loss of vitreous. The vitreous loss is somewhat higher by this method, but I am sure the high percentage recorded by some observers was due to faulty technic. Major Birchwood, a competent surgeon, reported a series of cases in *The Indian Medical Journal* in 1896 with a vitreous loss in 35 per cent. After visiting Col. Smith's clinics, he says: "To my surprise, I find the cases I reported of removal of the lens in its capsule were not done by Col. Smith's method at all, although I had tried to follow the technic from the description in his paper." Maj. Birchwood, last year, reported a series with vitreous loss 11 per cent. In the last 112 operations I performed in India, I lost vitreous nine times. Three of this series had been previously couched. Vitreous loss is generally avoided by removing pressure and inserting the spoon when a bead presents. The pressure then is against the spoon, the lens sliding out on the inclined plane. The principle is the same as involved with obstetrical forceps.

2. By rupturing the supporting diaphragm (suspensory ligament, posterior lens capsule, and hyaloid membrane), which acts as a guard against infection and safeguard to the anatomical equilibrium of the eye we, *ipso facto*, surrender the integrity of the organ. There certainly is not any function for the suspensory ligament removal of the lens. The hyaloid membrane is seldom ruptured and the dangers are not so many as when it occurs in the old operation. The posterior lens capsule tends to obscure vision and is destroyed as much as possible by needling.

3. Rupture of capsule. This is generally due to small wound, the lens not having space enough to escape. With rupture of the capsule we are placed in the position of the operator by the old method, but with the satisfaction of not having had to risk infection by putting an instrument into the eye. I had the capsule rupture five times in my last hundred extractions in India.

4. Incarceration and prolapse of the iris. I can recall only one prolapse of iris. Incarceration with drawn up pupil is due to corneal collapse, the iris sticking to the ciliary body and angles of the wound. If care is taken in separating the iris from these places it will not occur.

5. Prolonged irritability. My experience in India and America is exactly the opposite.

6. Unnecessary risk. There is nothing about the operation that cannot be acquired by practice. With a higher percentage of recoveries with good

vision than with the old method, I do not think one is justified in calling it an unnecessary risk.

After a few months I hope to give statistics of my American patients. It is almost impossible to give accurate results of visual acuity of the Indian patients, for they are practically all illiterates. According to the last census, only some fifty-odd thousand were able to read. Lahore, Calcutta, and Bombay have modern hospitals with surgeons whose skill is not questioned, but Col. Smith, in his small hospital, each year performs more cataract extractions than the entire staffs above named. Slow, conservative, and illiterate as they are, there must have been a marked advance in this operation to attract, under such unfavorable conditions, these ignorant natives. Col. Smith's book on cataract extraction gives a complete description of the many complications arising, together with drawings illustrating position of lens and operator.

DISCUSSION

Dr. J. M. Robinson (Duluth): Up in this part of the country, where the population is not very large and the human stock is mostly younger than in other parts of the world, and where the sun's rays do not beat down with the same intensity, and other factors prevail towards the production of opacities of the crystalline lens, as we may assume, from this paper, they do in India; but where, on the contrary, there is more of a tendency to run to specialism in medicine than there possibly is in the Orient, I am inclined to think that our population is more afflicted with oculists than it is with cataracts. Nearly every hamlet is provided with an ophthalmic surgeon. Now, if one operator alone had to deal with all of the cases of this kind in the seven adjacent counties,—excepting Ramsey and Hennepin,—he would be hardly able to attain and maintain sufficient dexterity—so delicate are the steps of the operation—to carry it to a successful conclusion in the majority of cases. There can be no question that it requires personal instruction to do this operation with skill; and that, of course, is the very reason why Dr. Harding went to India to see Dr. Smith perform the operation for cataract, so that, it seems to me, in this, as with other delicate surgical procedures, the occasional operator, the cross-road surgeon,—and this is no reflection on the majority of us, who do not operate on the same kind of cases more than once a month,—is safer in following the beaten paths of well-tried methods, although, truly, the results of this operation are brilliant in the hands of those who have been able to receive instruction from its great master. My own experience has been too limited to deserve mention.

This Association should, however, congratulate itself on having among its members one who has taken such great interest in the matter, and has really elevated the art of surgery by traveling around the world to acquire experience in one of the most successful and wonderful operations devised in the last ten or fifteen years and at the hands of the greatest cataract operator living.

This brings me for a moment to a point to which I would like to call attention, although it does not directly bear upon the title of the paper. Dr. Harding has touched upon Colonel Smith and his methods and work. Colonel Smith has advocated recently that which, during the past few years, has been somewhat tabooed in first-class ophthalmology, namely, the injection treatment for early cataracts; and he offers perhaps more encouragement in that line of treatment than we have heretofore received.

I am sorry my own experience in this line of work has not been more extensive. I have done but two extractions by the method under discussion. I have had 50 per cent success, which is much like the boy who stood next to the head in his class—with only two in school.

Dr. William R. Murray (Minneapolis): I think the experience of most of us in this country is so limited that we are unable to draw any very reliable conclusions in regard to this particular method of cataract removal.

I believe Major Smith should be credited with having made one of the greatest advances in modern eye-surgery, and there is no doubt in my mind but that the intracapsular extraction of cataract, as practiced by Smith, is well adapted to a large proportion of all cases of senile cataract, and particularly in certain selected cases, such as immature and hypermature cataracts. The question with us, it seems to me, is whether we can so perfect ourselves in Major Smith's technic that we can safely extract cataracts by the intracapsular method to the exclusion of the older and easier method of operating. There is no question but that the Smith method of operating is more difficult. It requires much more experience, and it requires trained assistants, a point of great importance in the success of the operation. Major Smith is credited with having done 20,000 cataract extractions. It is not unusual for him to do sixty extractions a day, and repeat it day after day, which is a clinical experience that would make any man an expert with the most difficult technic. Unfortunately, we do not have such advantages, so far as clinical material and experience are concerned.

The essayist has enumerated the advantages of this operation. One particular advantage is, that it obviates the necessity of a secondary operation for retained capsule. By the old method of operating, modified linear extraction with capsulotomy, we frequently had remaining a portion of the opaque capsule, which necessitated a secondary operation, and perhaps a couple of secondary operations; and no secondary operation is entirely devoid of danger. A second great advantage of the Smith operation is, that it is peculiarly adapted to the extraction of the immature form of cataract, while in this form of cataract the older method of operating has not been satisfactory. I refer to those cases of immature cataract where the patient is incapacitated for useful vision, where years may elapse before the cataract becomes mature, so it can be extracted by our former methods of operating. To this class of cases the intracapsular operation is especially well adapted, and one gets the best results, attended by the least danger. Here the Smith operation is the operation *par excellence* and should be the operation of choice.

The disadvantages of the Smith operation have been mentioned. One disadvantage, which was claimed some time ago when Major Smith described his operation, was, that there was greater liability to loss of vitreous.

Major Smith, according to his reports, does not get a greater loss of vitreous.

When, however, we consider the experience of other men with the intracapsular extraction, we do not always find so favorable results. Elschnig, of Prag, one of the most experienced of ophthalmologists, did sixty-three extractions after the method of Smith and had prolapse of vitreous in 17 per cent, and rupture of the hyaloid membrane in 23 per cent. The experience of such a man as Elschnig ought to be of value, and he did not agree that the Smith operation gives the best results in all cases.

Personally, I think the Smith operation possesses some advantages over the older method of operating, but that the cases should be carefully selected, choosing that method of operating in each individual case that promises the best permanent visual acuity with the least danger to the patient, both at the time of operation and in post-operative complications.

Dr. Harding (closing): In reading this paper I did not expect to make ophthalmologists out of all of you, or that you would be able, all of you, to do this operation. I tried to put before you this operation in its true light and to inform you that it is a successful procedure.

With regard to the reference made by Dr. Murray to Elschnig; I think the experience of Major Birchwood, who is doing this operation all the time, will answer in part what Dr. Murray has said. Dr. Birchwood says that Colonel Smith does not do the operation in accordance with the description which he gives of it. It is one of the things you cannot very well explain. You cannot tell why you put pressure just here (indicating). You can say you put pressure just below the center of the cornea; you get it over a little bit or tilt it, but your cannot tell how you do it. But it is the fact of being able to feel the thing. You feel it give; your hand goes with it, and that is all there is to it. One morning I had a very bad attack of malaria. I went to the hospital, operated on several cases, and lost the vitreous in ten per cent of them. My hand was steady, but it was like a piece of lead. My fingers were numb. Touch has a great deal to do with the success of the operation.

ECLAMPSIA*

By H. H. Sherwood, M. D.

HUMBOLDT, S. D.

My object in reading a paper on this subject, is not to present any new discovery, but, rather, with the hope that it may help to stir up an interest in the study of the etiology and the treatment of this much-dreaded disease.

It seems to me that any physician who has had experience with this disease, must be filled with a great desire to know its exact etiology and pathology, and that his supreme desire must be to find out how to prevent, if possible, its occurrence among his patients, and, perchance, if it does occur, to be able to have at his command a remedy in which he has some degree of confidence.

My experience with my first two or three cases of eclampsia was such that I ardently hoped that no more cases of this kind would fall to my lot, but for the last two or three years I have been more fortunate with these cases, and I am beginning to have just a little confidence in the treatment of it. Do not understand me, however, as thinking that I have found a treatment which I feel sure will cure all cases, for I have not.

The mortality of this disease is so high, and the etiology so obscure, that it seems to me we are justified in using any remedy that looks reasonable.

Let us consider for just a few minutes some of the different theories as to the etiology. Some authors claim that this condition is due to pressure on the kidneys or ureters. If this were true, it seems to me that we should meet with eclampsia more frequently than we do. Others claim that it is due to the albuminurea, which is almost always present in cases of this disease. Whether the albuminurea is the cause of the disease or it is a result of the disease, is a question that has been discussed very freely. Personally I am inclined to the belief that the albuminurea is a result of some morbid process, and not a factor in the production of the condition. While in all cases of eclampsia that I have seen albuminurea has been present, I am inclined to believe the testimony of men of wide experience who claim to have had cases of eclampsia in which albuminurea was not present.

It is worth noting that pregnant women who are known to have chronic interstitial nephritis, exhibit convulsions in only a very small percentage of cases. It is contended by some that eclampsia has a bacterial origin, but this has never been proven, and it is doubtful if any good ground can be found for believing it. It is claimed by still others that it is purely a condition of uremia. It is true that there are cases of uremic convulsions which very much resemble attacks of eclampsia, but, on the other hand, while uremic conditions are rather common, cases of uremic convulsions are rather rare. I have, even in my limited practice, had quite a few cases of both acute and chronic uremia, and several cases of uremic coma, but I have never had a case of uremic convulsions. While it must be admitted that the conditions of uremia and eclampsia are very closely associated, yet I am inclined to the belief that the predisposing cause of eclampsia has a different origin than that of uremia.

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*Read at the 31st annual meeting of the South Dakota State Medical Association at Mitchell, May 22 and 23, 1912.

The nervous system during pregnancy is known to be in an increased condition of excitability and the blood-stream to contain an excess of waste matter. These two facts, combined with a condition of faulty elimination, it seems to me, best account for the onset of the convulsions.

If, as claimed by Sajous, "the autoprotective resources of the human body are dependent on the thyroid and adrenal glands," and if it is a fact, as he claims, "that the thyroid gland does increase in size and activity during pregnancy," then it is possible that the cause of this condition may be found to be either an insufficient activity or an over-activity of some one of the ductless glands.

The pathology is also somewhat obscure. I think it is generally conceded that there is always a general condition of hyperemia of the kidneys with fatty infiltration and sometimes fatty degeneration, and there are hemorrhages in the brain, liver, and lungs.

I shall not go into the symptomatology, as I take it for granted that every one here has seen as many cases as I have, and perhaps more.

The main object of this paper is to bring out a few points in regard to the treatment.

Without doubt the best treatment for eclampsia is the prophylactic. When I was in medical school we were taught that it should be considered almost a crime for a physician to have a case of puerperal fever. If it was right to teach that puerperal fever is almost criminal, then, I believe, we should have been taught the same thing in regard to eclampsia, for, without doubt, as asepsis will eliminate almost all cases of puerperal fever so will proper prophylactic treatment prevent almost all cases of eclampsia. Prophylactic treatment consists, first, in educating your people to engage their physician early in all cases of pregnancy; second, to keep informed about the condition of the eliminating organs of all these cases. Insist on every patient sending in a sample of urine at least once a month up to the seventh month, and from then on to the end of pregnancy at least once every two weeks. Examine the urine for albumin, and take the specific gravity. I believe this is all that is necessary, and it takes but a moment to do it. I do not believe that it is necessary to make the test for urea, although some authors so claim it is. I made the test for urea on all my cases for one year, and, so far as I could see, all I gained by it was that I was severely frightened on several occasions. In one case in particular, the urea kept dropping from two per cent, lower and lower, until it never registered over one-half of one per cent, and several times there was no reaction for urea at all. All this time I was keyed up to the last notch, expecting every minute that this woman would go into convulsions, but she never had the remotest sign of a convulsion.

Just within the last two months I have had an experience that has well repaid me for all the urine examinations that I have made. A woman of rather frail constitution became pregnant, and I had been watching the case closely. The urine had been normal at all times up to about the eighth month, when I received a sample which completely solidified upon boiling. A sample received ten days previously to this was normal. Had I been twelve hours later in making this discovery, I am sure that this woman would have had an attack of eclampsia, because, as it was, she had just one very slight convulsion.

It is true that it is impossible to get all the people to engage you early or to bring in samples of urine, but if you will use your ability to educate people along this line you will be surprised to see how rapidly they will learn to comply with your wishes. I am sure that I am examining three samples of urine now where I examined one a year ago.

We now come to the treatment of the acute condition. We are confronted with a condition which demands that we control the convulsions, reduce the high arterial tension, and rapidly start elimination.

The fact that such a large variety of drugs has been recommended in the treatment of this condition, seems to me proof that there is no drug that can be considered a specific. I believe the bulk of authors and practitioners pin their faith to veratrum, combined, of course, with other drugs and methods, to promote rapid elimination. I wish to call your attention at this time to another drug, which, I believe, lowers the arterial tension nearly, if not just, as well as veratrum, and, in addition, has the property of rapidly starting the kidneys to functionating. I am not the originator of the suggestion of using this drug in this condition, but, unfortunately, I have forgotten the name and location of the physician first using it, except that he lived in eastern Illinois. At the time I saw his suggestion he claimed to have used it in twelve cases, with the recovery of every case, and also with no recurrence of convulsions after its use in any case.

The drug is guaiacol, used in the following manner: The skin of the abdomen is first well anointed with olive oil, after which from two to four drachms, according to the severity of the case, of pure guaiacol is rubbed into the abdomen. As you well know, this drug has been quite extensively used, painted upon the abdomen, for its antipyretic effect, in typhoid and other fevers.

In speaking of its use in typhoid fever Potter, in his "Materia Medica," says "that its application is followed by profuse perspiration, rapid falling of temperature, and the passing of large quantities of urine."

In reading the various text-books on materia medica, I am convinced that guaiacol thus applied owes its antipyretic properties to its power of lowering blood-pressure. While I have never had the opportunity of taking the blood-pressure before and after using this drug, I certainly shall do so if I have an opportunity.

That its application is quickly followed by action upon the kidneys, I am convinced by my experience with my last case of eclampsia, in which I obtained by catheter, less than two hours from its application, about four ounces of decidedly smoky urine.

It was my intention in this paper to limit my discussion of the treatment to this drug, but in *The Jour. of the A. M. A.* of April 20th, I noticed the suggestion of the possibility of the identity of eclampsia in the human and milk fever in the cow, and the successful use of the inflation of the udder of the cow with oxygen.

In looking through my older books on obstetrics I found that this suggestion was not a new one, and that the older treatment of injection of the udder with a solution of potassium iodide, had been tried in eclampsia by injecting the mammary gland of the human with a solution of potassium iodide with seemingly good results, but the results must not have proven constant, or the treatment would not have been abandoned.

I wish to report, very briefly, my experience with two or three cases of eclampsia.

The first case which I wish to mention is of interest only on account of its early occurrence.

This was a woman thirty-six years of age, and the mother of three children; she was taken with eclamptic convulsions between the third and fourth months of pregnancy, and although I was ably assisted by two older physicians and everything was done, even to emptying the uterus, the woman never ceased having convulsions and died in about fifteen hours.

The next case was one I saw in consultation. A young woman, twenty years of age, in her first pregnancy, was taken with convulsions during the second stage of labor. Delivery was hastened, but the convulsions continued to occur every hour or less for twenty-four hours, although treatment had included veratrum, normal saline, brisk cathartics, and hot packs. At this time we applied the guaiacol. There were no more convulsions, and the patient made a good recovery. It is possible, of course, that the time had come for the convulsions to stop, and that the result would have been the same had we not used the guaiacol.

The last case I wish to mention occurred in my own practice, August 3, 1911. Patient, twenty-seven years of age, mother of two children, previous good health, went into labor at 10 P. M. August 2d. At 2:30 A. M. on August 3d, she gave birth to a six-pound boy and at 3 A. M. to a five-pound boy, labor being normal in every respect. I left the patient a little after 4 A. M. Her pulse was slow, the womb well contracted, and she remarked that she was feeling fine. At 12 o'clock I received a hurry call. When I arrived I found the patient unconscious, the pulse too rapid to count, very cyonotic, and the respirations short and irregular. I could not obtain any definite history of a convulsion. The family informed me that she had urinated twice since I left at 4 o'clock and had complained only of pain around the heart. Her condition was such that restorative treatment was imperative. I confess that, at this time, I had not thought of eclampsia, but by the time she regained consciousness she went into a convulsion, which made the diagnosis clear. A catheterized sample of urine completely solidified upon boiling. Elimination was started at once, and also the usual treatment, but the convulsions kept on recurring about every half hour all the afternoon. At 6 P. M. we received a supply of the guaiacol. At this time the patient was having as hard a convulsion as she had had during the day. I applied the guaiacol while she was in the convulsion, and after this application there was no recurrence of convulsions, and she made a rapid recovery. Less than two hours after making the application I obtained about four ounces of decidedly smoky urine.

It is true that in one case where I have used this treatment the eclamptic condition occurred during labor, and the other post-partum, which cases, we well know, show the greatest percentage of recoveries, and both might have recovered without the treatment; still the action of the drug is such that with our present limited knowledge of the etiology of this disease it seems to me to meet the indications for treatment of the condition as well, if not better, than any other drug.

I would respectfully ask those present to try the treatment, if it looks reasonable, and report results. But, above all, I would like to urge every member of the profession to look well to the prophylactic treatment of this disease.

DISCUSSION

Dr. S. G. Berry (Tyndall): The doctor presented the matter of the guaiacol treatment which is new to me, but he omitted one of the most important things in the treatment of eclampsia, which is blood-letting, along, of course, with the usual treatment. I have been unfortunate enough to have a few cases of eclampsia, and in each case I think I had better results from blood-letting and normal saline solution than I did from any other one thing. Of course, I think that veratrum is our standard.

Dr. F. A. Spafford (Flandreau): I am sorry I did not hear the first part of the paper so that I might be able to discuss it more intelligently. I am most deeply interested in the subject of puerperal eclampsia, which I consider, perhaps, the most important and dangerous complication of pregnancy, if unnoticed or untreated. It is a condition which is far from being understood, and yet it gives the best of results if the obstetrician has taken due care of his patient as regards frequent urinary examinations and has carefully instructed her in regard to symptoms which may be of great importance so far as prophylaxis is concerned.

Some time ago I was asked to read a paper before the Aberdeen Medical Society. I took for my subject "Puerperal Eclampsia," not only because I had always been interested in this subject, but also because I had recently read an article upon the question in the *New York Medical Record* by Dr. Mitchell, of Fort Worth, Texas, which seemed to show a rational cause for this pathological condition. You all know that this disease has been called the "disease of theories." At one time or another, nearly every important organ in the body has been held responsible for its causation. The kidneys, liver, intestines, placenta, etc., have all had their innings. Dr. Mitchell, in his enthusiastic way, discussed the proposition as being probably due to a faulty calcium metabolism, a process which is so intimately connected with the digestion of fats that the infant was a regular calcium parasite, depriving its host, the mother, of her calcium salts; and the liver in this way underwent fatty loading and infiltration, then a true fatty degeneration took place, the organ ceased functionating, and, as a result, a toxemic condition ensued with its final manifestation in the eclamptic seizures and convulsions,—a condition which closely resembles the condition of tetany, which follows in certain cases the removal of the parathyroid bodies, which are supposed to have some connection with the metabolism of the calcium salts. His remedy was the exhibition of large doses of calcium lactate with most favorable results.

I have always insisted upon the examination of the urine in every pregnant woman who engaged me to attend her in her confinement, at least once a month during the first five months and every two weeks thereafter, and oftener if she has any albumin in her urine, severe headaches, or any undue swelling of the legs. About this time I was unfortunate enough to have a case which had developed a very severe condition of toxemia before I saw her. She had a general anasarca, failing eye-sight, and fearful headaches, and was mentally very dull. I remembered this paper, and placed her upon a milk diet, with large doses of calcium lactate and eliminative measures. I was very much surprised to see the whole appearance change for the better in a very few days. Since then I have had several cases, and they have all been treatd with the calcium salts, and I must say with the most gratifying results.

About two weeks ago I was called in consultation to see a woman given up to die as a result of eclamptic attacks occurring after delivery. I recommended the line of treatment already indicated, and in a few days was informed of the successful result.

During the past few months quite a large number of papers have been published along these lines, both in this country and Europe, and they are well worth your careful perusal.

Dr. D. S. Kalayjian (Parker, S. D.): I am sorry I did not hear all of Dr. Sherwood's paper. I have had some experience which I would like to tell this body.

Six years ago I was called out to the country on a hurry call. I found it a case of eclampsia. Mrs. D., aged 26, weighs 115 lb., American, primipara. Seeing the gravity of the case I called Dr. Peterman for help. The woman was having typical eclamptic convulsions, and they were getting more frequent. First thing, we bled the woman, and in the mean time started to empty the uterus. After the uterus was emptied, convulsions kept up almost twenty-four hours. Only chloroform could subdue the convulsions, though all kinds of sedatives, including hyoscine hydrobromide, were used. Catheterized specimen of urine was so full of albumin that it solidified by the heat test. The woman was totally blind for three days after the convulsions stopped and the kidneys began to functionate. The child was full term and lived, and today he is a robust six-year-old boy. The mother made a good recovery. Three years ago she was pregnant again. This time she followed my instructions very carefully and from the third to the eighth month she brought her urine regularly twice a month. The total amount was never less than forty-two ounces, and it went up as high as sixty-two ounces;

and there was never a sign of albumin. In due time I was called, but the stork was ahead of me. Everything was normal and the puerperium was normal.

My second case, Mrs. B., 38 years old, German, weight 230 lb., had seven children; forceps delivery; 15 lb. female child, dead. The urine showed heavy albumin, but she made a good improvement, and everything seemed favorable and encouraging, but two weeks later she developed phlegmasia alba dolens on the right leg. In two weeks this got well, but began on the left leg and had the same course with favorable result, but a week from that, namely, seven weeks after the labor, the woman died with uremia. Bleeding was not tried in this case.

My third case, Mrs. S., 32 years old, Irish, weight 185 lb. This case was treated by one of my colleagues as "la grippe." When I saw the woman, her only and main complaint was severe headache; and to express it as she put it; "Doctor, I can't see; I can hear your voice, but can't see your face." Examination showed decided edema of the legs; "but," she said, "that is from my condition." She was seven months pregnant. Examination of the urine showed it loaded with albumin. Energetic treatment with cathartics and diuretics was with happy results. The fourth morning she thought she would get up. The same afternoon I was summoned in a hurry, and an hour later she gave birth to a seven months dead child. I had every reason to believe that it was dead perhaps for three or four days. After this she still improved, but five days after the miscarriage the kidneys did not functionate and she died in coma. Bleeding was done without much help.

My fourth and last case was last winter. Mrs. B., primipara, American, aged 20, weigh about 125 lb. They called me at night because she had a "fainting" spell. She was five and a half months pregnant. Examination did not prove much, except high-tension pulse and slight edema on the right leg alone. She said that she had a spell like that a year ago and some dizziness off and on. Despite this indefinite history and almost negative finding I began to suspect that I was probably dealing with a case of eclampsia. I took a specimen of urine and went home telling them that if anything developed like that again they must immediately let me know. Before I got to the house (two and one-half miles) I received a telephone message that I should come back right away. A hurried examination of the urine showed decided albumin. I went back and found the woman was having another convulsion. That was the second since I had left her. Now, the diagnosis was plain. I bled her and used energetic eliminatives and waited to see the result. This waiting I did against my convictions, but with the advice of a colleague. She seemed to begin to show improvement for several hours, but late that day she showed stronger signs of toxemia, and this time I told them "I will not take further chances," and we emptied the uterus with dilation. The child was dead, but the mother made a good recovery.

CONCLUSIONS

I bled three out of four: One, who was bled and the uterus emptied, got well; second, the uterus was emptied and bleeding was done afterwards, she died; third one, bled and waited for developments, temporary improvement, but return of symptoms and then empty the uterus, she recovered.

Then the question, has bleeding done any good or was the good result due to emptying the uterus?

Another conclusion is that uremia intensified during the puerperium was fatal in all my cases.

Dr. Sherwood (Essayist): I have only a word to say in closing. In regard to blood-letting: I practiced blood-letting in my first few cases of eclampsia, and my experience in that regard with the first few cases of eclampsia that I saw was discouraging. I lost three cases straight. In each of these three cases I practised blood-letting. I can see no counter-indications for blood-letting. I cannot endorse it as a remedy to tide me over in those cases.

In regard to the occurrence of eclampsia in the primipara. My experience has been that I have had more cases in multiparæ than in primipara, although it is generally conceded that the primiparæ is the most liable to have eclampsia.

The convulsion of eclampsia and of epilepsy most closely resemble each other, and I would like to have Dr. Spafford try his treatment in a case of epilepsy.

The calcium lactate treatment is new to me. Of course, I have always used the milk treatment. I shall be glad to try the calcium treatment, but I would hardly feel like depending on calcium lactate in an acute condition of eclampsia, but I shall certainly try it as a preventive treatment in the next case I have which shows any tendency toward eclampsia.

THE EARLY REMOVAL OF GALL-STONES AND THE PRESERVATION OF THE GALL-BLADDER AS A PREVENTION OF DISEASE OF THIS AND CONTIGUOUS ORGANS*

ARTHUR E. BENJAMIN, M. D.
MINNEAPOLIS

It is the general opinion today that gall-stones are the result of gall-bladder infection due to bacterial invasion from the intestines, gaining entrance by the portal circulation or possibly through the common bile-duct. Infectious micro-organisms are carried into the liver substance and then find their way into the gall-bladder with the production of an inflammation of the mucous membrane, which results in the formation of gall-stones. In many instances a severe infection may produce cholecystitis with a formation of mucus and pus, and, in some instances, with ulceration and gangrene and perforation of the gall-bladder wall. Gall-stones are a late product of infection. One of the most important diseases which causes infection of the gall-bladder by the bacilli carried through the portal circulation is typhoid fever. A diseased appendix is a frequent factor in the production of gall-stone disease. It is, therefore, not uncommon to find gall-stones associated with appendicitis.

DIAGNOSIS

The belief that gall-stones are unproductive of serious symptoms or complications has been quite prevalent because of erroneous statements made by physicians to this effect: "This belief, together with the fact that gall-stones have not been diagnosed prior to the onset of complications, has resulted in gall-stone surgery becoming largely the surgery of terminal events." The symptoms of indigestion, biliousness and neuralgia and gastralgia, in a great majority of instances, can be traced to cholecystitis or cholelithiasis. The knowledge of gall-bladder disease and the experience of the surgeon and the general practitioner are increasing rapidly, and, ere long, this organ will have received the careful and deserved consideration that the appendix now receives.

WHEN TO OPERATE

English and American surgeons are more decided in their views as regards the operative necessity for gall-stones. Continental surgeons, with the exception of Riedel, are most conservative and wait for decided and serious symptoms to arise before they advocate surgical measures. Some agree that the operation should not be undertaken while the disease is local, but when such symptoms as empyema, chronic infection, adhesions, and symptoms of stones fixed in the ducts, are present, an operation is undertaken.

According to Kehr, the majority of gall-stone cases present no indication for operation. As he naively puts it, "Of 4,000 cases only one-third (1,300) have felt the edge of my knife" (der Scharfe meines Messers). A study of the remaining non-operated cases has led him to the conclusion that cholelithiasis tends to latency in about 80 per cent.

Goldemar would operate in acute infectious cholecystitis or recurring attacks of cholecystitis, in hydrops, chronic empyema, chronic obstruction of the common duct, in severe and repeated attacks of pain, cholangitis, liver abscess, perforative peritonitis, and in secondary changes in the stomach or intestine. He considers that the infection and inflammation call more for the operation than the presence of a stone.

EARLY OPERATION

While admitting that early operation will avoid many of the complications of gall-stones, surgeons are often loath to advocate it. Gall-stones are not normal residents of the gall-bladder. They are the product of disease and are a constant menace to the healthful function of the biliary, as well as the gastro-intestinal, tract. Why should so much precious time be lost in temporizing or compromising with infection and its offspring, gall-stones? Thousands of lives are lost annually, owing to ignorance and lack of prompt and timely attention by surgical intervention.

Moynihan has expressed himself as decidedly in favor of early operation, as soon as the presence of gall-stones can be diagnosed.

Richardson says that early gall-stone surgery, in skillful hands, is so safe that it seems worthy only of condemnation to employ methods other than surgical at the early period when operation is easy.

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*Read before the Western Surgical Association, December, 1911.

Although it is customary to speak of early operation, I would say, as Deaver points out, the surgeon who removes stones, is operating comparatively late in the disease, since these are found after an unknown, but probably long, lapse of time, and the occasion for medical measures has long since passed.

Every attack of gall-stone colic adds to the danger and the disease present and production of complications. Few cases recover spontaneously. Small incisions can be made, as the stones are usually in the gall-bladder. It is not necessary to remove the gall-bladder in early operation.

The mortality is very small when operation is done before complications arise. Mayo states that the mortality in early operation is 3 per cent, while that of operations when the stones are in the common duct is about 11 per cent. In 4 per cent malignant disease is discovered when the operative mortality is 22 per cent.

The difficulty and danger of an operation when the stones have migrated to the common duct are strong arguments for an operation when they are still in the gall-bladder.

Continental surgeons, for some unaccountable reasons, have not yet recognized the extreme necessity of early operation in gall-stone disease.

Kehr would operate only on latent stones or where cancer is suspected, or where stones are lodged in the ducts or cholangitis exists.

The surgeons in America in general have begun to associate with gall-stones of long standing pancreatitis, cancer, fistulæ, adhesions, cholangeitis, empyema, liver abscess, hemorrhages, subphrenic abscesses, gangrene of the gall-bladder, and local peritonitis and nephritis and diabetes in some cases. Empyema of the gall-bladder is possible where the cystic duct is obstructed and rupture of the organ is not uncommon. They are, therefore, attacking disease of the gall-bladder early, thereby avoiding any of the above-named sequels.

An inflammation in the gall-bladder ducts or tissue around these structures due to the migration of infectious microörganisms through their walls, results in adhesions of the contiguous organs involving the colon, duodenum, or small intestine.

An interference with the motility of the stomach and the emptying of its contents, produces gastritis, and chronic dilation of that organ is not infrequent.

The association of the common and pancreatic ducts is such that a stone lodging in the ampulla of Vater will obstruct the duct of Wirsung, blocking the exit for the pancreatic juice, and allowing the retrojection of bile from the common duct into the canal of Wirsung.

In the presence of stone infection is more probable, as the traumatism of the stone causes erosion and absorption of infectious microörganisms at these points, with swelling and enlargement of the lymphatics along the course of the ducts, often simulating stones.

CHOLECYSTECTOMY VERSUS CHOLECYSTOSTOMY

The gall-bladder has been likened to the appendix by a large number of leading surgeons who have advocated its removal when diseased, but, in so doing, they have not reckoned with other dependent and contiguous and associated organs. The rôle played by the gall-bladder in pancreatic disease has not been very thoroughly understood. The functions of the gall-bladder and pancreas are interdependent. For the proper function of the liver, gall-bladder, duodenum, stomach, and pancreas, a healthy state of all these associated organs must be present. Without one of these component parts of this system the functions of all are usually faulty. We must therefore endeavor to eradicate diseases involving one or more of these associated parts in a way which will leave them all intact and able to perform their functions normally, and unless there exists a condition making a gall-bladder permanently useless it should at all times be saved.

There is a notable difference of opinion as regards the advisability of removing the gall-bladder when diseased. Here again we find Continental surgeons advocating the more radical procedure, as we might expect, when they allow the more serious complications to arise before an operation is performed. The gall-bladder is, by necessity, sacrificed oftener by these men.

Delageniere removes the gall-bladder in wounds, ruptures, gangrene, chronic cholecystitis with stenosis of the common duct, over-distension of the gall-bladder due to stone in the common duct, and cancer.

A few years ago a number of notable American surgeons were removing the gall-bladder, but at the present time they are preserving it.

Pathologists and clinicians have found that with acute and chronic gall-bladder disease there often exist a cholangitis, congestion of the liver, jaundice, and pancreatic affections, and that drainage is an all-important necessity, and that it can best be permitted by saving the gall-bladder for that purpose. It is surprising in how many cases the gall-bladder will regain its normal function when properly drained. Even with stricture of the common duct, hydraulic pressure often facilitates the flow of bile into the duodenum. In suppurative cholangitis it is of vital importance to preserve the gall-bladder.

It has been found that 20 per cent of common-duct stones form in the liver, the gall-bladder acting as a safety-valve in this condition and in pancreatitis.

Friedemann reports a mortality of 14.2 per cent for cholecystectomy, and 2.4 per cent for cholecystostomy, excluding common-duct cases. From these figures he comes to a natural conclusion in favor of the cholecystostomy.

Trendelenburg carries out removal of the diseased gall-bladder whenever possible. Kummel does not regard the preservation of the gall-bladder as the most important object to be aimed at in each case, but endeavors to avoid unnecessary removal of a physiologically not unimportant organ. He removes the gall-bladder if he must; he preserves it if he can.

H. E. Hayd removes the gall-bladder in acute cholecystitis with gangrene, chronic cholecystitis, hydrops, cancer, and gunshot.

Jones Kirkland believes it a useless gall-bladder if diseased, and he treats it as one would a diseased appendix.

A. B. Johnson removes a shrunken gall-bladder with obliteration of cystic duct.

Moynihan removes the gall-bladder when grains of stone adhere to or are imbedded in the gall-bladder wall.

MacLaren removes the gall-bladder if it is functionless, when there is no indication of pancreatitis or when the cystic duct is permanently obstructed.

CANCER AND GALL-STONES

Convoiseer reports 72 cases of gall-stones in 84 cases of primary carcinoma of the gall-bladder. Musser found gall-stones in 69 of 100 cases of primary cancer, and he says that carcinoma is frequently found. Osler says 5 per cent of all gall-stone cases show cancer.

J. P. Chandler reports in the insane that gall-stones were present in 80 to 90 per cent of all cases dying from primary carcinoma of the gall-bladder.

J. A. McGlinn reports gall-stones present in 8 of 11 cases of primary cancer of the gall-bladder.

From these statistics it is seen that cancer is the sequel in quite a per cent of cases, and no doubt the presence of gall-stones and infection are exciting causes. There is sufficient evidence now to prove that such is the case. Necessarily, it follows that we should operate upon the gall-bladder when there is presented strong evidence of disease or the presence of stones.

PANCREATITIS AND GALL-STONES

In the close association of the common bile-duct and the pancreatic duct there is such an arrangement, which is responsible for many cases of pancreatic disease.

Deaver reported 65 per cent of gall-stone diseases associated with pancreatic disease.

Mayo reports 81 per cent of gall-stones associated with pancreatitis, and Mayo Robson 60 per cent.

Opie found that in 90 cases the two ducts had an anastomotic connection. There are three points at which lodgment of the stone may occur. The first is at the point where the common duct plunges into the head of the pancreas. The second the marked constriction where the duct penetrates the wall of the intestine, and the last is the narrow outlet of the papilla of Vater. While admitting the existence of pancreatitis, probably of ascending origin, it is, nevertheless, true that the majority of inflammations of this organ owe their existence to cholecystitis and cholelithiasis which has later affected the common relationship of the pancreatic and bile ducts. The head of the pancreas is usually affected, and in few exceptions of chronic cases it may extend to other portions of the gland.

Diabetes is occasionally associated with this condition. To recapitulate briefly:

"Chronic pancreatitis may be suspected of having complicated gall-stone disease when symptoms point to severe recurrent disease of the choledochus with marked emaciation and disturbance of the carbohydrates metabolism or evidence of insufficient action of the pancreatic ferments on the food in the intestines."

This liability of the pancreas to involvement in gall-stone disease is a strong argument for early operation in biliary infections or cholelithiasis.

It has been demonstrated that where pancreatitis exists, the preservation of the gall-bladder is imperative and that, through thorough drainage, we can effect a cure, if at all, by saving the gall-bladder for that purpose.

CONCLUSIONS

1. Gall-stones are not normal residents of the gall-bladder.

2. They are the product of infection from the alimentary canal and a late complication of the microbic invasion of the gall-bladder.

3. Many of the severe gastro-intestinal symptoms are due to the presence of gall-stones lodged in the biliary tract.

4. Cholecystitis resulting in production of gall-stones will recover less rapidly when stones are present.

5. Whenever stones can be diagnosed, an operation should be advised.

6. Gall-stones often migrate from the gall-bladder to the cystic or common duct and later lodge there, causing destruction of the tissue and obstruction of the duct. The operative mortality is 3 per cent when in the gall-bladder, and 11 per cent when in the common duct.

7. Inasmuch as an operation for gall-stones is usually one of "terminal events," an operation should be performed, if possible, before they are formed, viz., in the cholecystitis period.

8. The interdependence of the gall-bladder, stomach, liver, and pancreas is such that the gall-bladder should be preserved in all cases where it is not hopelessly diseased and unable to regain its function.

9. The frequency with which pancreatitis is associated with gall-stones in the common duct, makes the gall-bladder an essential organ to assist in the drainage of the biliary passages in pancreatitis, and it should be saved.

10. The percentage of cancer associated with and following the irritation of gall-stones in the biliary tract, should urge all practitioners to recognize their responsibility in a case of postponed operation for gall-stones.

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PROGRESS IN MEDICINE

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UNDER THE CHARGE OF

DR. CHAS. LYMAN GREENE

Professor of Medicine and Chief of the Medical Clinic

These abstracts are read and discussed at the departmental meetings held monthly at the University Hospital.

BACILLUS DYSENTERIAE RECOVERED FROM THE PERIPHERAL BLOOD AND STOOLS OF CASES IN PANAMA

BY S. T. DARLING, M. D., and L. B. BATES, M. D.

American Journal of the Medical Sciences, January, 1912

Darling and Bates have been able to isolate from the stools of two patients and from the blood of another living in the Canal Zone, bacilli which responded to cultural and agglutinal reactions, such as found in the type "Y" and Shiga of the dysenteriæ group. They call attention to the use of Endo's media as a quick method of differentiating typhoid and dysenteriæ from colon. Eventually they use, however, serum reactions as confirmatory evidence. That in bacillary dysentery a bacteremia should supervene is not surprising. Yet this fact has been denied by some. H. L. ULRICH.

THE INTESTINAL WORMS OF THREE HUNDRED INSANE PATIENTS DETECTED BY SPECIAL METHODS

BY DR. S. T. DARLING

Bulletin de la Societe de Pathologie Exotique, Tome 4, *Seance du* 10, Mai, 1911

Three methods employed by the author in the search for parasites or ova in the stools are described.

1. Plate culture method. A portion of the stools is placed in the center of a petri dish, and with several drops of sterile tap-water added, is allowed to incubate at 76° to 84° F. for 18 to 20 hours. Examination with a dissecting microscope would disclose streptococcus stercoralis, either filariform embryos, or sexually differentiated forms, oxyuris vermicularis, and hookworm larvæ.

2. Direct smear method. This same specimen of feces is placed on a slide to find protozoa, ova, or larvæ of strongyloides.

3. Differential method after Bass. Feces mixed with sterile tap-water is centrifuged, the supernated liquid is removed, and the tube refilled with a sol. calc. chloride, sp. gr., 1.250, after thoroughly mixing again centrifuged. The surface film is now pipetted off and examined microscopically on a slide for ova. This method segregates all the ova, worms, and some strongyloides larvæ, chiefly the dead ones.

Darling's findings are interesting, and for their detail the original must be consulted. Some of the interesting points in his study of the incident of infection are (1) cestode infection is not found in the native; (2) the common finding of strongyloides; (3) fatal hookworm is rare, though the disease is still common and persistent; (4) the finding of Bilharziosis; (5) owing to the rarity of typhoid, and yet the great incident of whip-worm, one can safely draw the conclusion that it is not a causative factor in producing this disease; (6) owing to the fact that diarrhea is uncommon in the cases having whip-worm infection, it can again be assumed that it is not a cause for this symptom.

H. L. ULRICH.

DIPHTHERIA ANTITOXINE AND ANAPHYLAXIS

BY JOHN A. RODDY, M. D.

New York Medical Journal, December 16, 1911

Roddy gives some interesting statistics of injections of antitoxin in relation to anaphylactic symptoms. He rightly calls attention to the difference in reaction of man and of guinea-pigs or rabbits to horse-serum.

Out of more than eight thousand cases which received diphtheria antitoxin two or more times, anaphylaxis was found to supervene in less than one hundred and fifty. Only two deaths occurred. Many of these reactions of hypersensibility were very mild.

The conclusions drawn are obvious. H. L. ULRICH.

DIE VERWENDUNG VON AZETONEXTRAKTEN ZUR SERUMDIAGNOSTIK DER SYPHILIS

VON PROF. W. KOLLE und OTTO STINER

Deutsche medizinische Wochenschrift, No. 38, 1911

Kolle and Stiner endeavor to show that aceton extracts of organs either derived from man or animal, are more delicate and potent in their use as antigens for the Wassermann test than those extracted by means of water, alcohol, or ether. Moreover, the extracts from syphilitic livers are more potent than from non-syphilitic organs or from the organs of animals, if made in this way.

A gram of powdered organ which has been previously dried is placed in 20 to 50 cc. of pure aceton. This is incubated for 8-10 hours, then shaken for 8-10 hours, then left standing for 24 hours at the room temperature, and filtered, when it is ready for use. It is best preserved in dark-stained bottles with a rubber cork and in a cool place.

As the authors put it: "If you take the average of the limits within which the alcohol and aceton extracts react with luetic sera on the one hand with normal sera on the other, and in which inhibition of hemolysis occurs, the relations are 2-1 with alcoholic extracts, as against 9-1 with aceton extract. This means for the 'practice' a reduction of the field of error of more than fourfold."

Noguchi has been advocating for over a year an aceton insoluble residue of organs extracted first with alcohol. Here we have Kolle and Stiner using the soluble aceton portion of the organ for exactly the same purpose, and both claiming increased delicacy and potency.

The chemistry of the lipoids is still very obscure.

In this instance the obscurity is seemingly enhanced by the contradictory methods involved. It is quite possible that Noguchi and Kolle and Stiner have arrived at the same values. The process of drying the organ first in the Kolle-Stiner method may change the desirable lipoids so that they are soluble in aceton. Noguchi works with the fresh organ. Here the lipoids are extracted with alcohol, and the insoluble residue, after treating with aceton, is the desirable portion. He then re-dissolves with alcohol. This explanation is purely hypothetical.

It is difficult to get a good Noguchi type of antigen and as the Kolle-Stiner method is simpler than that of Noguchi's it should be welcomed for that reason.

H. L. Ulrich.

THE PROGNOSTIC VALUE OF THE UROCHROMOGEN AND DIAZO REACTIONS IN PULMONARY TUBERCULOSIS: A PRELIMINARY REPORT

By Roy C. Heflebower

American Journal of the Medical Sciences, February, 1912

After reviewing the various opinions more or less conflicting in regard to the Ehrlich body as a prognostic sign in tuberculosis due no doubt to the difference in the technic of the Diazo reaction and to the fact that the substance as yet is an unknown, Heflebower calls attention to Weisz's work (*Munch. med. Woch.*, June 20, 1911, Vol. 58). Weisz thinks Ehrlich's body is a chromogen—a generator of the urinary pigment urochrome. For this reason he calls the substance *urochromogen*. This urochromogen is due to defective oxidation, which prevents it from turning to urochrome. He ascribes this low oxidation to the fact that the tissues are either bathed in a massive amount of toxin, due to an enormous deposit, or that the body is unable to resist the invasion of toxin, thus permitting mass action. By means of the urochromogen test he means to measure low toxin output or high resistance values independent of the size or quantity of the lesions. In brief, the appearance of the body is a bad sign in the prognosis.

The technic for the urochromogen is as follows: Three drops of a 1-1,000 solution of potassium permanganate is added to 1 cc. of urine diluted with 2 cc. of distilled water. The appearance of a yellow color shows that urochromogen is present. The test is considered positive only when the urine remains clear.

The author attempts by means of a rigid technic of the Diazo reaction and this latter test to substantiate Weisz's findings. He reviewed 39 cases. His conclusions are as follows:

1. "That the frequency and the constancy of the appearance of the Diazo and urochomogen reactions in the urines of cases of pulmonary tuberculosis is an index to the severity of the condition, a constant negative result pointing to a case that is doing well while a constant positive result indicates a progressively downward case."

2. "That the urochromogen test occurs more frequently, and is more constant, than the Diazo reaction. It is therefore a better index to the condition of the patient than the Diazo reaction."

3. "That the intensity of both the Diazo and the urochromogen reaction is of great import as an index to the severity of the condition, especially as a method of determining the difference in the prognosis in cases which show the reaction constantly." H. L. Ulrich.

SOME APPLICATIONS OF THE CREHORE MICROGRAPH, WITH ESPECIAL REFERENCE TO THE RECORDING OF HEART SOUNDS

By J. H. Austin, M. D.

American Journal of the Medical Sciences, February, 1912

Austin makes a preliminary report of the methods of using the Crehore micrograph in the study of the physiology of the cardiovascular system in man and animals. He reviews briefly previous similar methods, referring to the work of Holowinsky, and describes the apparatus.

Crehore's instrument is constructed for taking two simultaneous photographic records, not of the heart-sounds, but of the movements of the heart or pulse. The instrument is so constructed that impulses from the apex beat or pulse, as desired, are transmitted by a closed column of air through tubing to an interference-instrument where movements are produced in a metal diaphragm carrying a small mirror. The changes in the distance separating this small mirror from a lens fixed above it cause movements of light-interference rings from a mercury vapor lamp, and these movements are photographed through a slit on a moving film.

Austin has made the following modifications and additions:

1. A time-marker.
2. An electromagnetic signal.
3. A modification to permit taking of more than two simultaneous pulse-tracings.
4. An apparatus for taking tracing from the exposed heart.
5. An adaptation of the micrograph to the recording of heart-sounds.

He gives the details of each of the above modifications and additions, which would be interesting only to those concerned with the technic.

The principal interest to the clincian lies in Austin's method of recording the heart-sounds. Success in this was attained by using a very sensitive diaphragm on the interference-instrument and fastening the mirror to this. The instrument is connected with the chest by means of thick-walled rubber tubing terminating in the chest-piece of a Bowles stethoscope.

In the course of the tubing an air-valve is placed and is left slightly open so that the gross shock of the apex beat is not transmitted, while the more rapid vibrations causing the sounds are well transmitted to the interference-instrument.

By this method a simultaneous photographic record can be obtained which shows graphically the heart-sounds as related to the apex tracing.

Austin finds that this apparatus is of value in the study of various problems concerning the physiology of the heart and circulation, and promises that the results of the studies will be presented in a later communication. S. Marx White.

A CASE OF THORACIC TUMOR AND ANEURISM OF THE DESCENDING THORACIC AORTA, TREATED WITH SALVARSAN

By G. Reese Satterlee

NEW YORK

Reprinted from the New York Medical Journal

Satterlee's patient was a man, aged 50, with a definite history of lues. He came complaining of hoarseness and aphonia, continuous pain in the left side of the chest, and dyspnea on exertion.

Examination showed a paralysis of the left vocal cord; engorgement of the superficial veins of the left chest, shoulder, and arm; heart, normal, except for slight hypertrophy; distinct area of dullness over the first and second interspaces, but no murmur, pulsation or thrill; the left radial pulse was absent; the eyes normal; the Wasserman reaction positive; stereoscopic radiographs revealed a round tumor mass in the neighborhood of the arch; its outline was smooth and spherical, and the density of the shadow less than the aorta. Satterlee could not be convinced that the tumor was only an aneurism.

Four-tenths of a gramme of salvarsan was given. Two and one-half days later the left radial pulse could be felt, and the patient began to improve rapidly. Three months later 0.3 of a gramme of salvarsan was given. Six months after the first dose of salvarsan there was only a slight weakness of the left vocal cord, and the Wasserman reaction was negative.

The diagnosis is aneurism of the arch, with a syphilitic deposit in the neighborhood, causing the pressure symptoms. There is no marked diminution in the size of the aneurism.

In discussing the treatment, Satterlee says that, in cases of aortic aneurism with active syphilis, repeated small doses of salvarsan should be given rather than one large dose.

In his experience the blood-pressure does not rise more than five millimetres, so that danger from this source can probably be eliminated.

E. J. Huenekens.

THE DIETETIC TREATMENT OF DIABETES

By P. J. Cammidge, M. D.,

LONDON

The Lancet, March 23, 1912

The aim of the modern treatment of diabetes is to balance the diet in such a way as to make nutrition as adequate as possible, without throwing unnecessary strain on the organs of metabolism. Carbohydrates in larger amounts than the defective metabolic powers of the diabetic can deal with are injurious. On the other hand, their permanent exclusion is not only unnecessary, but often positively harmful. Temporary exclusion is frequently necessary, and Cammidge states that it is often surprising how the carbohydrate tolerance will be increased by this temporary measure. Many diabetics have a marked susceptibility to proteins, and in such individuals the glycosuria is more greatly reduced by restricting the protein intake and allowing carbohydrates than by wholly excluding the latter. He finds the proteins of vegetables less harmful than those of meats, and for this reason advises days of vegetable-feeding and the use of prepared vegetable proteins, such as soya beans, etc.

"Having found that a patient is passing sugar in the urine," Cammidge says, "we must treat the patient as such and not the disease." The first point to settle is the gravity of the individual case, and for this purpose we must ascertain:

1st. The intensity of the diabetes.

2d. The presence and degree of secondary abnormalities of metabolism.

3d. Whether any disturbance of nitrogenous equilibrium exists.

In order to form an accurate estimate of the patient's power to deal with sugar, it is necessary to estimate the intake, as well as the output. Since the amount of dextrose in the urine is dependent, not only upon the amount of carbohydrate ingested, but also upon the intensity of protein metabolism, the possible maximum of sugar that can be derived from broken-down protein must be included in the intake.

Rubner states that each gram of protein nitrogen may correspond to 5 grams of dextrose, so if the total urinary nitrogen is multiplied by 5 the result will represent the sugar that may possibly be derived from protein, and this, plus the carbohydrate of the food, will represent the total sugar available for nutrition. If now the total output of sugar in the urine is divided by the total available sugar, a figure is obtained that indicates the relationship between the two. Multiplied by 100, this figure gives the percentage of sugar estimated as unused, i. e., Falta's "co-efficient of excretion."

Lusk, after experimenting on dogs, has suggested that, instead of 5 grams, the co-efficient be made 3.65, and the following is the formula that Cammidge approves of:

The total dextrose in the urine multiplied by 100 and divided by the total urinary nitrogen multiplied by 3.65, plus the food dextrose, equals the co-efficient of excretion.

Hence the co-efficient of excretion can be obtained for the individual patient and constitutes a criterion of progress.

2d. The secondary disturbance of metabolism usually seen in diabetes, is that associated with imperfect oxidation of fats and proteins, the end-products of this imperfect oxidation being beta-oxybutyric acid, aceto-acetic acid, and acetone. The serious results of the formation of these acetone bodies is the liability to diabetic coma. It is believed that they themselves are not toxic, but exert their pernicious effects on account of their acid properties, hence the term *acidosis*.

The recognition and estimation of any existing acidosis is very important, and the index used is the amount of ammonia nitrogen excreted in twenty-four hours, the normal amount being 0.3 to 1.0 gm. In diabetes 2 to 6, or as much as 12 gm. may be excreted in twenty-four hours, and with an excretion of 3 grams or over there is usually danger of coma supervening.

3d. According to Weintraud, acidosis is only dangerous when it is accompanied by a disturbance of nitrogenous equilibrium; i. e., when more nitrogen is excreted than is being absorbed. A rough computation can be made by comparing the nitrogen content of the food from diet-tables, allowing 1 gram of nitrogen for each 6.35 grams of protein, with the nitrogen excretion in the urine, plus 1 gram to represent the unabsorbed nitrogen excretion in the feces.

Cammidge further advises that the urine and feces be examined also for evidence of pancreatic, biliary infections and intestinal troubles. The diet for a diabetic must carry 34-35 calories per kilogram of his body-weight, and the material must be in such a form that it can be utilized. It is frequently not advisable to attempt to clear the urine of sugar immediately, and this is especially true if the patient is losing weight and strength. It is better to determine the carbohydrate tolerance, protein tolerance, etc., and soon one can arrive at a perfect balance.

In severe cases where the co-efficient of excretion is high the first need is to restore the nitrogenous equilibrium. To introduce some of the so-called "oatmeal," potato, or rice cures for diabetes is often necessary, and rest in bed and small doses of opium or codeine are also useful for this purpose. Vegetable proteins and eggs are also useful, but the balance of the dietary must be made up of fats, and lower fats, such as unwashed butter, have been found more prone to induce acidosis than the higher fats. Hence, they should be given guardedly, or not at all. Spirits and dry wines are also very useful, but the total alcohol content of these should not not exceed 40 grams a day.

Cammidge reports two very interesting cases with very high co-efficients of excretion, and gives two interesting charts showing the results of treatment. He particularly emphasizes the fact that diet should be prescribed quantitatively as well as qualitatively, and that an accurate record of the intake and output be kept whenever possible. JOHN E. HYNES.

UEBER DEN NACHWEIS VON TUBERKELBACILLEN IN BLUTE BEI LUNGENTUBERCULOSE UND SEINE DIAGNOSTISCHE BEDEUTUNG

By DR. R. HILGERMANN UND DR. J. LOSSEN
COBLENZ

Deutsche med. Wochensch., No. 19, 1912

The authors report on the blood-findings in 64 cases of pulmonary tuberculosis investigated for tubercle bacilli by means of an elaborate and painstaking method.

They conclude that—

(a) Tubercle bacilli may be recovered from the circulating blood in 25 per cent of the cases, not alone in those of advanced type, but also in relatively limited lesions.

(b) No relation exists between the heightened fever and the occurrence of the bacilli in the blood.

(c) The presence of tubercle bacilli in the circulating blood by no means indicates the imminence of a generalized miliary infection, as the cases may live for a year or more, but does unfavorably affect prognosis.

(d) The inconstancy of the findings and the time-consuming technic necessary to a thoroughly dependable examination, prevent any general use of this special diagnostic procedure. C. L. GREENE.

A CLINICAL STUDY OF A THOUSAND CASES OF ULCER OF THE STOMACH AND DUODENUM

By JULIUS FRIEDENWALD, M. D.
BALTIMORE, MD.

American Journal of Med. Sciences, August, 1912, No. 2.

The medical aspects of gastric ulcer are admirably presented by Friedenwald in an article containing the results of an analysis of 1,000 cases of gastric and duodenal ulcer derived from material representing 12,598 cases of gastric disturbance (7.8 per cent). All cases permitting doubt or uncertainty as to diagnosis have been omitted.

His conclusions carry many points of clinical and statistical interest and are given in the order in which they appear in the paper.

Conclusions:

1. 7.8 per cent of the patients complaining of gastric disturbance were found to carry ulcers.
2. The maximum of incidence lies between the twentieth and thirtieth years.
3. Male incidence is more than double that of female incidence.
4. Marked anemia is present in most cases.
5. A history of over-indulgence in food or drink appears in over 50 per cent.
6. 46 per cent showed normal acidity, 30 per cent hyperacidity, and 23 per cent subacidity.
7. The average duration of symptoms was twelve years.
8. Pain is most frequent and severe in cases of high acidity and constituted a prominent feature in 94 per cent of the 1,000 cases.
9. Epigastric tenderness was present in 90 per cent; dorsal tender area in 32 per cent.
10. Vomiting occurred in 67 per cent.
11. Hematemesis occurred in 22 per cent, melena in 51 per cent, and occult blood in 81 per cent.
12. Of the 1,000 cases, 52 per cent were diagnosticated as duodenal and 40 per cent as gastric ulcer.
13. Of those classed as duodenal, 48 per cent presented normal acidity, 35 per cent hyperacidity, and 16 per cent subacidity, hyperacidity being proportionately more frequent in males, subacidity in females.
14. Pain was present in 96.5 per cent of the duodenal ulcers and most severe in hyperacid cases.
15. Intermissions varying from one month to a year or more are very common in this form.
16. Epigastric tenderness was present in 89 per cent of the duodenal cases.
17. Vomiting occurred in 21 per cent of the duodenal cases and was most severe in those showing hyperacidity.
18. Melena occurred in 54 per cent of the duodenal cases and occult blood in 83 per cent.
19. Of 91 operated cases, 65 (71 per cent) were cured, and of 45 of these which could be followed 41 remained permanently well.
20. Of peptic ulcers treated by the Leube method 72 per cent were cured. Of those treated by the Lenhartz method 66 per cent were cured.

Ambulatory cases treated with nitrate of silver showed recovery in 47 per cent; treated with bismuth, 50 per cent; with olive oil, 40 per cent.

COMMENTS

In the light of modern surgery, one may justly question any attempt to rigidly differentiate gastric and duodenal ulcer in the absence of actual inspection, but Friedenwald's figures emphasize the fact that a large proportion of ulcer cases recover under medical treatment, provided that sufficient time be given and absolute rest be enforceable. Mild and responsive cases may require but a month; severe cases require from six to eight weeks.

When sufficient time cannot be had, the patient is better off in the hands of a competent surgeon than when placed on ambulatory treatment, of whatever type.

Severe and persistent pain, evidences of stenosis, vomiting or hemorrhage unrelieved by medical measures, recurrence despite thorough medical treatment, or an absolute inability to secure sufficient time to undertake it, are sufficient reasons for surgical treatment.

Primary recourse to surgery is seldom justifiable.

C. L. Greene.

LETTSOMIAN LECTURES ON GLYCOSURIA

By Archibald E. Garrod, D.M.M.A., F.R.S., Etc.,
LONDON

The Lancet, Feb. 24 and March 2d and 9th, 1912

After an able presentation of the historical aspect of glycosuria, Dr. Garrod discusses most clearly and delightfully the "Definition and Diagnosis of Diabetes," saying at the outset that one cannot accurately define a condition which is essentially indefinite. He then presents an extremely thorough review of the causes and varieties of glycosuria and shows that both pathologic and clinical classifications are possible.

The potential or alimentary glycosuria is dealt with *in extenso*, and special discussions are devoted to glucose and starch intolerance and their significance.

Transient or temporary glycosuria is very properly placed in two classes: (1) that occurring in persons ever on the verge of glycosuria in whom a temporary depression of tolerance or some slight excess of carbohydrates give rise to glycosuria for short periods, but in whom the *tendency* is permanent; (2) cases of lowered tolerance of short duration in which complete recovery occurs.

The "Diabetic Tendency" is admirably discussed, as is the share played by various organs in causation. The part played by the nervous system, pancreas, liver, and intestines, is well presented, and the third and last lecture is devoted to a discussion of the relation of the ductless glands to sugar-excretion and truly represents an excursion into the wonderland of physiology and medicine.

Dr. Garrod discusses in particular the relation of the secretions of the thyroid gland, pituitary body, and adrenals to glyocsuria, and closes with a consideration of the glycosuria of pregnancy and that occurring in the absence of hyperglycemia.

In summing up, he calls attention to the many morbid conditions which may produce disturbances in carbohydrate metabolism, whether this take the form of (a) diminished glucose-tolerance without actual glycosuria, (b) temporary glycosuria, or (c) the persistent form attended by those severer associated clinical manifestations which make the classical clinical picture of diabetes.

A consideration of these conditions, together with the fact that the same cause may produce in different cases or, indeed, in the same case, these several degrees of glycosuria, must, he believes, demonstrate the impossibility of considering "diabetes" as a sharply defined disease.

He would regard it as merely a maximal phase of a series of steps, the lowest of which represents the slighter departures from normal metabolism, just as "myxedema" is the culmination of almost insensible grades of hypothyroidism.

With the possible exception of so-called renal glycosuria, he holds all glycosurias diabetic, however much certain varieties lack the sinister import of the graver forms.

Referring to the complexities of the metabolic activity, he shows how readily the weakening of any one prop, if incapable of repair, may result in disorganization of the whole structure, or, on the other hand, leave it weakened, but still serviceable.

Theoretically, he says, we must seek the primary cause and may find it in the pituitary body, pancreas, thyroid, or some other organ, but usually in practice we fail to find the underlying lesions, and face what appears to be "sheer, wanton, metabolic insanity." Nor does it follow that when a specific cause is made clear we can cure the patient, nor yet that any one plan of treatment can always prove effective in combating a disease of complex causation.

Dietetic restriction has its uses and decided limitations, and, however valuable as a means of checking and minimizing the effects of metabolic error, it serves, too generally, to postpone rather than avert the fatal ending.

Dr. Garrod emphasizes, nevertheless, the value of modern methods as to classification, diagnosis, and treatment, and he expresses the belief that the future holds a solution of the obscure problems which must be solved before a thoroughly effective and adequate therapy can be established.

The reviewer has done little to convey to the reader any just idea of either the scientific or literary qualities of these charming lectures, which epitomize modern views on glycosuria, and he hopes that every one to whom the London *Lancet* is accessible may find an opportunity to share the pleasure and profit he has obtained from them.

C. L. Greene.

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COLLECTING BILLS VS. MALPRACTICE SUITS

THE JOURNAL-LANCET has already had occasion to call attention to the uncertainties in medical practice, but it does not hesitate to again affirm that no medical or surgical man is safe from the unscrupulous deadbeat who neglects or declines to pay his just bills and brings a suit for malpractice to discourage the doctor from claiming his fee.

A young surgeon operated on a patient four years ago and has letters in his possession received two years after the operation in which no complaint of deformity or disability is made. At the end of four years when the payment of the fee is forced, the patient brings in the usual counter claim for damages. This means loss of time and expense to the surgeon, and, in all probability, a total loss of his fee. At the time the operation was performed the surgeon had confidence in his patient that everything would go well, but evidently his confidence was shattered when the bill remained unpaid.

It is just as well to be forearmed and not to be over-trusting; and for this reason, if for no others, every medical man, immediately after his graduation or at the moment he enters the field of practice, should join a county society and thereby the state association, which carries a defense fund. If no such fund exists, a policy in some reputable insurance company is the alternative. The young man may hesitate about investing a few dollars for such protection, but he might better go without an office-desk than without a defense policy. Such protection makes him feel safer, and he knows that the burden of expense will be borne by a large body, and he will not be subject to annoyance and anxiety.

The collection of bills is a formidable procedure to some doctors, and the only way to it is in a business-like manner, just as other professional or business men do it. Send bills as soon as possible after service is performed, send them again in a month if not paid, and keep on sending them until they are settled. Dismiss sentiment and cultivate a cordial footing with patients, and they will think more of you for your business methods.

Men in the country not infrequently must wait for the seasons to complete their cycles before a settlement can be made, but if that is the understanding and the custom then all are affected alike. It must be rather trying for the man who is unable to collect his bills from his patients and to know that his own necessary expenditures must wait upon some one else. There should be a way out of it, but it seems hard to find. The medical defense fund of the Minnesota State Medical Association has saved many a man from a malpractice suit when attempting to collect his bills.

The moral of this story is to join a country society, and thus get the protection offered by the state association.

THE EPIDEMIC OF INFANTILE PARALYSIS IN LOS ANGELES, CALIFORNIA

There has been much said in the lay and medical press about the epidemic of poliomyelitis in Los Angeles, and, as usual, the number of cases has been grossly exaggerated. It was thought at one time that the epidemic would spread through the entire city, and that numerous deaths would result. The epidemic was severe enough, however, and almost rivaled the epidemic in New York, in 1908. It did not approach, however, the epidemics in Norway and Sweden. A very careful tabulation of the cases was kept beginning with June 15th and ending August 27th. During the week of July 20th there were 104 cases. During the week of August 3d and the week of

August 10th there were 93 cases each week. The total number of cases recorded, excluding duplications, from week to week, was 221, and the number of deaths was 43, which is quite a large percentage, but not an unexpected one.

The Commissioner of Health, Dr. Powers, is a man of wide reputation, and he succeeded in stamping out the epidemic very effectively, so that no further cases have occurred in the vicinity of Los Angeles since the last of August.

Tourists who are planning to go to California for the winter, may now do so without fear of contagion, for the epidemic was controlled and suppressed, partly through the segregation of the sick, and partly through the education of the public by the dissemination of literature which told in a simple way the nature of the disease and the methods of prevention.

The city council decided that strict quarantine was necessary, and the Department of Health was instructed to place a guard at every infected house, both night and day. The results of this procedure have been ideal, in spite of the opposition of people opposed to inspection and the usual health measures.

The *Arizona Medical Journal,* Vol. 1, No. 2, which, by the way, is as snappy and aggressive a state journal as is published, has a very good editorial entitled, "The 'Brady'ing of an Ass," which tells of the opposition and hindrance in the health officers in their effort to control the epidemic of infantile paralysis in California and in Arizona. The man who went to Phoenix to stir up such opposition was evidently a member of some antimedical organization. He asserted, with much vehemence, that he had investigated the conditions in California, and had found few, if any, cases of infantile paralysis, and if there were any they were not likely to spread, for he had visited an orphan asylum and no cases were found there. He, furthermore, did not believe that the "epidemic" was present, as there were not over 300 cases, all told. He went on to say, in his gentle way, that doctors were making capital out of this "scare," and that it was a well-known fact that they were spreading out their tentacles and fastening them on to the government, and that the city needed protection against the doctors, collectively and individually. This sort of talk sounds like that of a lawyer who works for the League for Medical Freedom.

This man's entrance into Arizona and his endeavor to prevent health officials from keeping infantile paralysis out of the city, fell very flat, and he was obliged to retire with the knowledge that only two cases and one death from infantile paralysis occurred in Arizona. Both of these were in Tucson, and one of them in the family of a cult which denies the existence of disease.

That epidemics may be controlled is very evident from the success of the Health Department of Los Angeles, which also shows that opponents of medicine are still at work, but that their force and influence is rapidly dying out.

TEST SUIT AGAINST HEALTH COMMISSIONER

A suit against the health commissioner of Minneapolis, Dr. P. M. Hall, is the outcome of the "blue-card" system of placarding houses found unsanitary by the health department. A woman seeks to recover $6,000 damages caused by posting a card on her rooming-house, stating that it was in an unsanitary condition. It is claimed by the health department that there were reasons for believing that a case of tuberculosis existed in the house, and the landlady had refused fumigation. The blue card that was posted read as follows: "These premises are unhealthy and should not be occupied until made sanitary."

This system of placarding houses is one of the methods of education that are forcibly used to protect the health of others, and it emphasizes the fact that the health department of every city should be given absolute police powers. The great difficulties that make life a burden for a health officer should be eliminated. In Minneapolis, and doubtless in many other cities, the office of health commissioner is a political one, and is hampered by a large council or a committee of the council who are called upon to pass upon questions of public health. Many of these committees try to do what is right, but the majority of such boards actually know nothing about ths questions which come before them. They may know, in a general way, what is needed, but when it comes to debating or deciding a question which requires expert knowledge, they know nothing. They are not expected to be used in health work; the honor of advisor is thrust upon them, and they do the best they can. Usually a committee of this sort is more interested in finding occupation for their constituents, and the men selected by them have to be directed and educated in the work before they can be of service. Then, too, a lack of funds to carry on the regular and necessary work of a great department is withheld for the same reason; a lack of knowledge of essentials.

Smaller health boards, composed of men who are by profession fitted for such work, are needed in all cities. An engineer trained in sanitary service, a chemist and bacteriologist, and a trained physician, freed from politics and endorsed with police powers, would soon make a satisfactory showing. They could control all of the factors that make a city safe and healthful. Minneapolis has made a good showing under the present health commissioner, but the department could do much more if it had funds and freedom.

Dr. Hall will doubtless be victorious in his suit, but it is a disgrace that conditions render a suit of this kind possible.

BOOK NOTICES

Elementary Bacteriology and Protozoology By Herbert Fox, M. D. Cloth, price, $1.25. Lea and Febiger, Philadelphia.

This work is an elementary treatise intended primarily for the nurse and the beginner. The subject matter is presented in clear, concise English. The author has been remarkably successful in simplicity and clearness of statement and at the same time has given a good general exposition of the principles of bacteriology.

The volume is not intended for those who expect to become bacteriologists. Very little attention is given to the preparation of media, the cultivation and differentiation of micro-organisms, or, in fact, to any of the practical work of the bacteriologist.

The morphology and physiology of bacteria, as well as the chemical changes they effect in the media in which they live, are clearly explained. Good discussions are found in the chapters dealing with the destruction of bacteria and the relation of bacteria to disease. The illustrations are largely taken from standard authors

The book will be very useful to nurses and to other persons who wish to know the principles of bacteriology, but do not care to master its technic.

—E. T. Bell.

The Blood of the Fathers: A play in Four Acts. By G. Frank Lydston. The Riverton Press, Chicago.

Dr. G. Frank Lydston in his "The Blood of the Fathers," sets forth the existing evils of our present form of society as he conceives them. He states, in the form of a four-act play, that instead of attempting to cure, those factors which are the cause of crime and degeneracy should be prevented; that, instead of punishing wrong-doers for acts for which their ancestors are really responsible, the source of these evils should be struck at.

If proper discrimination were used in marriage, if degenerates were prevented from having children, if everyone had healthy surroundings and were properly nourished it would do away with the greater part of crime.

There is nothing especially original in the work, but it may, in its dramatic form, force home certain truths which are frequently overlooked.

Taken as a whole, this book is a distinct advance over any other work now before the profession. The subject-matter is extremely interesting, clearly written, and abundantly illustrated. A valuable asset to any man interested in this branch of medicine.

Laboratory Methods, with special reference to the needs of the general practitioners. By B. G. R. Williams and E. G. C. Williams. Illustrated with 43 engravings. C. V. Mosby Co., St. Louis.

The technical accuracy of the authors' methods, original or selected, are beyond criticism Their naivé appeal that every practitioner do some form of research work is equally commendable.

The book is of interest to laboratory workers, as it unfolds little "wrinkles" that abound in every laboratory.. But, to the rusty, well-meaning practitioner its message is a form of mockery. The authors seem to have lost sight of the fact that for a practitioner to do good work the stimulus must lie deeper than an appeal to common-sense laboratory methods. There is no doubt that many a man will start with its appeal only to have the impulse die like the proverbial New Year's resolution. It is for this reason one cannot help feeling that such a book has no intrinsic value.

The introduction by Prof. Vaughan is interesting reading. Does it ring true? Victor Vaughan, of all men, knows that the day of isolated discoveries in medicine, particularly in laboratory medicine, is a thing of the past. All real values in research now come out of co-ordinated institutions. Many plants are so complex that they need business managers to run their economic detail, but, of course, clinical observations need not be limited by this modern development of laboratory methods. James Mackenzie's work on the heart is a striking example of a "general practitioner" working in an isolated town.

Ulrich.

General Medicine. Practical Medical Series, 1912, Vol. By Billings and Salisbury. The Year Book Publishing Co., Chicago.

This little volume of nearly four hundred pages has compressed into it a review of recent literature on subjects in general medicine that are of great importance to the practitioner and highly stimulating either to the practitioner or to the specialist in internal medicine. The subjects covered comprise the infectious diseases, diseases of the lungs and pleura, the cardiovascular apparatus, the blood and ductless glands, and the kidneys, together with diseases of metabolism and a few miscellaneous subjects.

Of special importance to the practitioner and to the internist is the extensive consideration given to tuberculosis, in which particular attention is called to a number of important subjects; e. g., the finding of tubercle bacilli in calcified masses; a study of leucocytes in tuberculosis; the importance of acute bronchitis in exacerbations and remissions; the relation of tuberculosis and pregnancy; and many other important topics.

The value of the antiformin method and a summary of opinions on the value of local and general tuberculin reactions are of live interest. Recent literature on the treatment of tuberculosis is reviewed at length.

The review on rabies will be of particular interest to readers in the Northwest where the disease has gained very startling headway in the past two or three years.

Under diseases of the heart, the effect of recent electrical studies is shown in the extensive review of work done with the electrocardiogram. The function of the heart is also carefully considered, as well as the nature of auricular fibrillation. The discussion on the action of digitalis is illuminating, and it is instructive to learn that this drug is particularly contra-indicated in partial heart-block and in certain cases of tumultous action in mitral stenosis.

The other departments are as instructive and suggestive as those touched upon by the reviewer.

S. Marx White.

Augustus Charles Bernays: A Memoir. By Thekla Bernays. C. V. Mosby & Co., St. Louis. Price, $2.00.

Thekla Bernays can be readily excused for writing so eulogistically of her brilliant brother. The principal charm of the book lies in her naivé assumption that he was a great man and that his erratic acts and very human foibles are of interest to the public.

The book takes up his life, particularly in relation to his work as a surgeon. It is written in a personal, slightly piquant vein and is filled with interesting anecdotes. One cannot help being impressed with the force of this remarkable man. He had an indefatigable mind. He was an original and logical thinker. He had a wonderful memory. To these were added a pleasing personality, manual dexterity, fearlessness, and an absolute confidence in himself. Even his entire lack of a sense of humor was probably an asset to him, as it did not prevent him from always taking himself seriously.

The little book will be found as easy reading as a story, and will be particularly enjoyed by his host of personal friends in the West. Reed.

The Story of a Doctor's Telephone Told by His Wife. By Ellen M. Firebaugh, Author of "The Physician's Wife." The Roxburgh Publishing Co., Boston. Price, $1.25.

This book of 239 pages is full of the humorous and sometimes foolish messages which burden the doctor's telephone. To those who have seen the telephone so abused, it will probably be of interest to know that others have similar troubles.

NEWS ITEMS

Dr. Paul B. Blair, formerly of Winona, died on Nov. 10th.

Dr. H. C. R. Norriss, of Chicago, has located in Enderlin, N. D.

Dr. J. S. Kilbride, of Canby, Minn., has moved to Watertown, S. D.

Dr. H. W. Arndt, a graduate of Northwestern, has begun practice in Paynesville.

Dr. F. A. Spafford, of Flandreau, S. D., has just returned from a four months' trip in Europe.

Dr. Henry C. Doms, of Holland, has purchased the practice of Dr. Richardson, of Slayton.

Dr. O. H. Urstad, of Kiester, has let the contract for a small hospital building to cost about $4,000.

Dr. George D. Rice, of Pipestone, has become associated with Drs. Pilon and Putney, of Paynesville.

Dr. Clarence O. Maland, of Minneapolis, was married last week to Miss Magdelene Holter, also of Minneapolis.

Dr. T. N. Yeomans, of Bancroft, Minn., has located at Minot, N. D., and will take up the practice of the late Dr. J. D. Taylor.

Dr. Robert S. Forbes, a recent graduate of the University of Pennsylvania, has become associated with Dr. David Graham, of Duluth.

Dr. Samuel H. Van Cleve, of Minneapolis, died last week at the age of 58. Dr. Van Cleve formerly practiced at Mantorville and St. Cloud.

The Board of Medical Examiners of North Dakota has revoked the license of Dr. John W. Kurtz, of Minneapolis, to practice in that state.

Dr. C. E. Prudden, who has been on the staff of the Malgrem Hospital at Virginia for a couple of years, has returned to Duluth to enter general practice.

The physicians of Hancock and Houghton, Mich., have organized the "Twin City Physicians' Club." The club has three purposes, social, literary, and clinical.

Dr. E. W. Gaag, of Zion, proposes to test in the higher courts the right of a physician to compound his own medicines without possessing a diploma in pharmacy.

Dr. J. Harlan Stuart, of Minneapolis, will hereafter devote his entire time to x-ray therapy and to electrical and like treatment in cases referred by the profession.

Improvements to cost $4,000 are being made on the Samaritan Hospital, of Bemidji. This will add two wards and increase the capacity of the hospital to 120 patients.

Dr. G. L. Baker, of Pine City, has moved to Brownsdale to take up his brother's practice, the latter going to Hayfield Junction as physician for the Great Western Railway.

Dr. H. R. Baker, of Waltham, has purchased the practice of Dr. N. C. Thimsen, of Hayfield. Dr. Thimsen will move to Blooming Prairie, where he formerly practiced.

The St. Louis County Medical Society passed a resolution in favor of the commission form of government for Duluth on the ground that the health work of the city could be done better under such form of government.

Dr. J. H. Selby, who has been associated with the Radiographic Department of the Mayo Clinic for the past three years, will leave Rochester permanently on January first and will probably go abroad to take up special *x*-ray work for an indefinite period.

The Rice County Medical Society and the Northfield Public Library Association have arranged for a series of public lectures on disease, hygienic welfare of the people, and the usefulness of the library outside of literary culture and entertainment.

The number of Red Cross Christmas Seals placed on sale in the United States is officially announced to be over 80,000,000, almost one for every person in the country. Their sale at one cent each would realize $800,000, which is indeed a huge sum.

The Woman's Medical Club, composed of the women physicians of Minneapolis, St. Paul, and near-by towns, has planned a series of lectures for the winter to be given free before the women's clubs of the two cities. These lectures will be upon health subjects.

Last month 173 men were arrested in various parts of the country for selling medicines and instruments to produce abortion. The charge against them was using the mails for immoral purposes. A number of Northwestern physicians were among the number.

Dr. C. J. Ringnell, of Minneapolis, has returned from a visit to the clinics in New York, Philadelphia, and Baltimore. He attended many of the sessions of the Clinical Congress of Surgeons of North America. The meeting was attended by a large number of Northwestern surgeons whose names will be published in our next issue as far as obtainable.

The Speakers' Bureau of the American Medical Association has selected the following physicians to make addresses in Minnesota in the national campaign of health work undertaken by the Association: Dean Wesbrook and Dr. Lee, of the University; Drs. Bracken and Hoag, of the State Board of Health; and Dr. Wilson, of the Mayo Clinic.

Dr. H. Longstreet Taylor, of St. Paul, has given the press an interview in which he strongly condemns the lack of funds to carry on the work of the State Sanatorium for Consumptives. The institution can accommodate 125 patients, but because of a lack of funds only 100 can be received. Dr. Taylor pronounced the condition a disgrace to Minnesota.

Dr. Alexander von H. Vanderhorck died several weeks ago at the British hospital at Singapore, at the age of 58. Dr. Vanderhorck was a brother of the late Dr. Max Vanderhorck, of Minneapolis, and he formerly lived in Minneapolis and St. Paul. He was a distinguished scientist and author, and received many honors from the British government.

The Minnesota State League for Nursing Education has been organized by the superintendents of the nurses' training-schools in the state. Mrs. Frances D. Campbell, superintendent of the City and County Hospital, St. Paul, was chosen president; Miss Louise Powell, of the University Hospital, was elected vice-president; and Miss Grace Watson, of St. Barnabas Hospital, Minneapolis, was elected secretary and treasurer.

The State Conference of Charities and Correction, the State Sanitary Conference, and the State Association for the Prevention and Relief of Tuberculosis, held a joint Health Day meeting at Austin, on October 24th. Morning, afternoon, and evening sessions were held, and were presided over by the respective presidents of the organizations, namely, Rev. John A. Ryan, of St. Paul; Dr. Geo. Douglas Head, of Minneapolis; and Dr. Walter J. Marcley, of Minneapolis.

The North Dakota State Medical Association has called a special meeting of the Association to be held at Devils Lake on December 5th. The principal purpose of the meeting is to consider new legislation. The Association is making strenuous efforts to drive from the state the "grafters and fakirs," who will be attracted in large numbers by the good crops of the year. The Associated Doctors and Dr. Rea & Co., of the Twin Cities, are especially mentioned in a circular issued by the Association.

The Crow River Valley Society met at Litchfield on Nov. 13th. Dr. Geo. E. Putney, of Paynesville, read a paper on "An Analysis of Two Hundred and Fifty Cases of Obstetrics;" Dr. W. R. Murray, of Minneapolis, presented a paper on "Ocular and Nasal Headaches;" Dr. H. E. Robertson, of the State University, gave a lecture on "Chemical Tests for Occult Blood;" Dr. K. A. Danielson, of Litchfield, read a paper on "Differential Diagnosis of Some Acute Diseases of the Abdomen." A banquet was given in the evening.

At the monthly meeting of the Hennepin County Society, held on November 4th, Drs. J. S. Fleming and F. C. Rodda were elected to membership; Dr. A. S. Hamilton was appointed a member of the committee co-operating with the judges of the municipal court in the study of the causes of crime; and special attention was called by the president, Dr. Bradley, to the importance of making proper vital statistics reports. Papers were read by Drs. L. W. Craft, Herman A. Bouman and Chas. A. Nootnagel on hyperthyroidism, and these papers were fully discussed.

A woman 55 years of age, who had been operated upon at the Swedish Hospital, by Drs. Dunsmoor and Sheldrup, ceased breathing for some time, and the surgeons considered her dead. In about twenty minutes the pulmoter put at the service of physicians by the General Electric Co., was obtained, and by means of it artificial respiration was kept up for four hours. The patient recovered entirely and last week she returned to her home in North Dakota. Oxygen was used in the twenty-minute interval above noted. The Swedish Hospital has purchased one of these instruments.

PRACTICE FOR SALE

A good $2,200 cash practice in village near the Twin Cities free to purchaser of my driving outfit and a few other articles. Practice well established, unopposed, and collections over 98 per cent. Address G. A. care of this office.

SANITARIUM FOR SALE

Exceptional opportunity for bright, active physician or physicians to purchase a well-established revenue-earning sanitarium, located in a city of 45,000 and connected by a street-car line with city of 80,000 and having a large patronage from the range districts of Minnesota, Wisconsin, and Michigan. Address I. M., care of this office.

PRACTICE FOR SALE

Practice and small private hospital equipment in thriving town of 900 in northwestern Minnesota. Rich farming country. Collections 98 per cent. Good opening for surgeon. Competition light. Reason for selling, retiring. Address H. M., care of this office.

A WALLACE BED FOR RENT

A Minneapolis Sunshine Society has an adjustable Wallace bed which they will rent at $2.00 a week or $5.00 a month. Address Mrs. L. M. S., 2006 Willow Ave. No., Minneapolis.

PRACTICE WANTED

I desire to buy in Southern Minnesota in a village of 1,500 or less a practice of at least $3,000. Have cash to pay for good place. Give full particulars in first letter. Address H. Z., care of this office.

PRACTICE FOR SALE

A well-established practice in Western Minnesota. Best of territory. Railroad and insurance appointments alone will soon pay purchase price. Will sell residence if desired by purchaser. Am retiring permanently. This will bear investigation. Address S. L., care of this office.

PRACTICE FOR SALE

$3,500 practice in one of the best cities of 7,000 population in southern Minnesota. For a good all-round man this is the chance of a lifetime. Will stay and introduce purchaser. No real estate. Address C. O., care of this office.

PRACTICE FOR SALE

An unopposed village and county practice goes to the purchaser of my residence. Good country; good pay; good schools, etc. Must be taken at once. Address G. G., care of this office.

Doctor: If you want practical postgraduate work during fine season in the delightful city, write for particulars. New Orleans Polyclinic, P. O. Box 797, Postgraduate Medical Dept., Tulane University of Louisiana.

PUBLISHER'S DEPARTMENT

REMOVAL OF THE SOUTHSIDE SANITARIUM

The above-named sanitarium, long conducted in Minneapolis, has moved to 1400 Ninth avenue south.

The Southside sanitarium is conducted by Dr. W. S. Jones, the specialist in nervous diseases and editor of The Journal-Lancet. The institution is a private hospital for mild mental cases, and the number of cases that can be accommodated is limited to twenty. The building is fully equipped for the isolation and protection of mental cases.

Special attention is given to insure patients abundant and nourishing food, skilled nursing, and efficient medical aid.

For terms and admission, address Katheryn Lemcke, head nurse, 1400 Ninth avenue south, Minneapolis. Telephones, Nicollet 4061; Tri-State, Center 3990.

VOLUNTARY LIQUIDATION

The Physicians' and Surgeons' Supply Company of Minneapolis having voluntarily withdrawn from business, their entire stock of surgical and hospital supplies has been purchased by Noyes Bros. & Cutler of St. Paul, who will offer them at special prices while they last.

This is an excellent opportunity for our readers to get many things in the line carried by this house at reduced prices.

PURE WATER

We take it that the demand for an absolutely pure softer water for drinking purposes will rather increase in Minneapolis, however much may be said of the filtered river water soon to be put into our water pipes.

Those who are buying water should look very carefully into the sources from which such water comes, and we are sure no finer water can be found than that brought from the deep sandstone of Wisconsin by the Sandstone Spring Water Co. of Minneapolis. Then, too, their mode of handling the water is unexcelled. Porcelain-lined tank-cars bring it to the city, and it is put into bottles by machinery, thus keeping it as pure as it was when it came from the earth. No purer water is obtainable anywhere.

MELUBRIN

Loening, of Halle, in the *Munchener medizinische Wochenschrift,* 1912, Nos. 9, 10 and 11, says: "Melubrin behaves as a specific in acute articular rheumatism, when given in doses of 15 to 30 grains, three or four times daily. It has no action on the heart and there is no acceleration of pulse. The remedy can even be given if endocarditis is present. It also gives positive results in chronic articular rheumatism, myositis, and sciatica.

"In typhoid fever it is effectual as an antipyretic. Its action in this respect may be compared with that of a cold bath or Pyramidon. In several severe cases of tuberculosis the persistent antipyretic action of Melubrin was especially valuable.

"Antipyresis was obtained in scarlatina, angina, erysipelas, and miliary tuberculosis, and the remedy was tested in croupous pneumonia with remarkably favorable results. I have given over 45,000 grains of Melubrin and have seen no failures and no paradoxical results."

Melubrin has recently been introduced to the medical profession in this country through the medium of the Farbwerke-Hoechst Company, of New York, and samples will be sent to physicians who signify their desire to receive them.

THE MIDWAY GENERAL HOSPITAL

The above hospital is conveniently and advantageously located for every patient who has occasion to go to a hospital in the Twin Cities. While readily accessible, it has the advantage of being in the country, for it is practically away from all the noise and dirt of each city.

Its staff is composed of men very high in the different specialties of medicine and surgery. Its prices are from $10 to $20 a week, which are indeed as low as such accommodations can be had in the smallest towns without the advantages only possible to the city hospital.

NEURONHURST

The line of work inaugurated by Dr. W. B. Fletcher in the above institution a number of years ago has been enlarged and is now successfully carried on by Dr. Mary A. Spunk as superintendent of Neuronhurst. It is probable that few institutions in the country do a more varied work than is done in Neuronhurst, and our readers will do well to keep acquainted with it, for they may have patients that cannot be treated so well at any other place. The institution is located in Indianapolis, Ind.

A SEASONABLE REMINDER

Urotropin in full doses (adults 15 grains, children two-sixth grains, three times per day), given in the early stages of a "cold," assisted by a mild saline laxative, is the modern method of "breaking it up," far preferable to and safer than quinine, phenacetin, acetanilid, etc.

Based upon its proven excretion by the mucous membranes of the entire respiratory tract, systemic Urotropin medication is also recommended as a routine measure in acute rhinitis, tonsillitis, catarrh, bronchitis, influenza and grippe.

This, however, is only one new field of usefulness of this most diffusible of drugs, which to many practitioners is still known only as a urinary antiseptic. Physicians who have not yet received the new 20-page booklet on Urotropin, recently published by Schering & Glatz, New York, can obtain a copy of the same by addressing the firm, mentioning this journal. It is the best and most convenient way to become posted on Urotropin therapy up to date.

In TYPHOID FEVER

A Rex Sanitary Closet (Formerly Red Cross)

the first consideration of the attending physician is the minimizing of the possibility of the spread of the infection. Therefore,

One Rex Sanitary Closet

should be his first precaution. Spread of the disease can result from exposed evacuations only,—an impossible condition where a Rex Sanitary Closet and Rex Co.'s Special Disinfectant (Guaranteed coefficient 16) are used, the system insuring prompt, thorough and permanent sterilization of the excreta.

Rex Closets are portable, absolutely odorless during use, do not require water-pressure, sewerage, or plumbing of any kind, and are inexpensive.

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THE WORK OF THE PUBLIC HEALTH EDUCATION COMMITTEE OF THE AMERICAN MEDICAL ASSOCIATION AND ITS RELATION TO THE STATE AND COUNTY SOCIETY*

BY LAURA ARLENE LANE, A. B., M. D.

State Chairman of the Public Health Education Committee among Women of the American Medical Association

NORTHFIELD, MINN.

The Public Health Education Committee of the American Medical Association was formed three years ago by the House of Delegates of the Association. In the resolution creating this committee appears the following preamble:

"Whereas, the demand for popular education with respect to tuberculosis, cancer, typhoid, and other decimating diseases has become urgent; therefore, be it

"Resolved, That all county, district, and other local medical societies be and are hereby requested to hold annually one or more open meetings to which the laity shall be invited, and which shall be devoted to a discussion of the nature and prevention of disease and the general hygienic welfare of the people."

Up to this time there had been no organized effort toward public health education work by the American Medical Association or, in fact, by any large medical body. Since this Committee was formed it has established its work in every state in the Union. It has been the means of assisting several of the state medical associations to form active public health education committees to work in co-operation with the American Medical Association committee.

Last year this Committee gave 4,550 talks and lectures besides arranging for fifty public series of lectures. The attendance was over 300,000. In Minnesota the Committee gave 105 talks and the attendance was 6,000. It has extended its work from six to fifteen counties.

There seems to be a tremendous increase of interest in hygiene and sanitation throughout the country. If it is not due to the work of this Committee, during the past three years, it is certainly a striking coincidence that they came into existence about the same time and are developing together.

The Public Health Education Committee for Women is composed of both men and women members of the American Medical Association. Its sole purpose is to disseminate accurate information concerning the nature and prevention of disease and the general hygienic welfare of the people.

What is our relation as a State Association—and as individual members to the American Medical Association and its activities? First, our State Society membership is composed wholly of the members of the county societies; second, membership in the American Medical Association, the largest organized medical body in the world, is obtained, with one exception, only by holding membership in a county and state society. Thus it will at once be apparent that our relationship is very close, we are a constituent of this organization and as such should be especially interested in the work which it is carrying on, not only for the upbuilding of the medical profession, but in its wider altruistic work which this Public Health Education Committee is establishing.

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*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

The American Medical Association, through its various activities, is doing much to improve the physician's knowledge. Medicine has made rapid advances in the past twenty-five years. The public's comprehension of the same and of the relation of the profession to the public, has not advanced so fast. The time has come when it behooves the profession to see that the people are rightly educated in health matters if public confidence is to be maintained and quackery stamped out.

The work which a county society does is an index of the professional attainments of its members and of the character of the services rendered the public. One does not need to join a medical society to improve the medical profession as much as to improve one's self. To increase the confidence of the laity in the profession is one of the tasks of the day. If we show our interest by obtaining better health community standards we have contributed much. The demand for education in the prevention of disease was never so great as at the present time; the people are ready, but have we fully availed ourselves of the opportunity?

The Public Health Education Committee is trying to offer to the public, through its speakers and the topics which it is presenting, just the form of education most needed. It affords to every physician a dignified means of conducting health work. It does away with any idea of personal aggrandizement, since the work is entirely gratuitous, except the expense for halls and outside speakers, which is met by the organizations under whose auspices the talks were given. It furnishes free of charge a list of over fifty topics bearing directly on hygiene and public health.

As to some of the specific things which this Committee is seeking to establish in Minnesota:

First, we are trying to establish a Committee for Public Health Education in every county in the state where a regular standing committee on this work does not exist. We are urging every county medical society to hold one or more open meetings during the year to which the laity shall be invited. These meetings shall be for the purpose of arousing enthusiasm in public health work.

Second, to arrange for a series of public lectures in the larger cities and towns of the state. An example of this was seen in the splendid series of health talks given in Minneapolis last winter under the auspices of the Hennepin County Medical Society Public Health Committee and the Committee for Public Health Education among Women of the American Medical Association.

Third, to urge the larger hospitals in the state to become centers of education in the prevention of disease, a most fitting object, since convalescents have much idle time which they could use with profit once or twice a week, in attending short health talks.

Fourth, to establish a Health Day in the public schools; to urge upon teachers and parents the importance of medical inspection in the schools; to secure the co-operation of the parents and schools in obtaining proper instruction of the young in practical hygiene and in sex hygiene; to secure regular courses in practical hygiene in our colleges and higher institutions of learning.

Fifth, to secure traveling libraries on hygiene and sanitation for rural communities. The Committee at all times has a list of literature approved by its sub-committee on Medical Literature and will furnish such list free upon application. Also to secure additions to the literature already existing on hygiene and sanitation in our public libraries.

Sixth, to provide health talks on the programs of teachers' institutes and farmers' institutes, and to foster the extension of rest-rooms in rural towns for the farmers' wives. To increase the interest in rural hygiene and pure milk and foods by holding several open meetings during the year in such rest-rooms. Above all, to unite the medical profession and the laity in a campaign for better health conditions in their respective communities, thereby increasing and developing a greater public confidence in the profession and in the work of the American Medical Association.

Membership in the Public Health Education Committee is without fee, the only request being made that each member will volunteer to give at least one talk during the year from the list of topics prepared by the Committee, and, in so far as he can, promote the interests of Public Health Education work among the laity.

There are 925 American Medical Association members in Minnesota and 439 more members of this State Association who are eligible to American Medical Association membership. Think what it would mean if every one of these members gave but one health talk during the year. The hope of the future lies in education. Better knowledge in health matters means greater efficiency and comfort for the individual. The state or the community which allows its inhabitants to sicken of preventable diseases, is out of harmony with the highest ideals of civic duty. In this work of education the organized medical profession must take active part. The American Medical Association has established this Public Health Committee to undertake this work, and it asks your co-operation.

DISCUSSION

Dr. J. P. Sedgwick (Minneapolis): I do not like to see such an excellent paper as this go without being discussed, because I think this is very important work. In our county we appreciate the importance of the work of this committee, and we have a sub-committee of our medical society engaged in similar work. We are not doing justice to the women members of our own society if we do not heartily support this very excellent movement.

Dr. S. Marx White (Minneapolis): We under-estimate the importance of this subject if we do not spend a few moments in discussing it, and that is my reason for saying a few words. It seems to me that the work of this committee is very much more important than we realize, for the reason that the American Medical Association and through it the American medical profession are definitely committed to the propaganda of health education among the general public. I think it is extremely important that the public be brought to appreciate the tremendous force of the movement which is going forward for the betterment of the public health. As an organized body or profession, the medical profession is the only body sufficiently in touch with the facts connected with the public health to properly present the needs to the people. There will be a day, and I trust it is not far away, when there will be an immense corps of public-health workers, but I think it will be unfortunate if that corps of public-health workers is divorced from the medical profession, and it is now or never with us if we are to stay in the van of that movement. In every community of this state medical men should bring before the people the facts in simple form and help in the movement to improve health and prevent those ills or troubles that are preventable. The medical profession has led this movement and should stay in the lead.

Dr. Mary S. Whetstone (Minneapolis): I do not like to let the opportunity pass without emphasizing one suggestion which Dr. Lane made, and that was for the country physicians who have hospitals in the various towns to co-operate with this committee and have these lectures emanate from or be delivered in the hospital, thus reaching patients in the hospital who come from various sections of the country, giving them this needed instruction, as well as extending an invitation to the men and women of the laity in the towns in which the hospitals are located. Physicians should improve every opportunity to disseminate the knowledge that has been suggested that should come from the physician, in order to maintain the hold which they have upon the confidence of the people. They regard the physician as being duly qualified to give them the right kind of knowledge. There are a great many people who are suffering from a lack of knowledge, and nobody knows this better than the physicians. Every one who goes out from a hospital has his or her circle of friends and can help to disseminate the knowledge acquired from such lectures. This is a good suggestion—in fact, all of the suggestions in the paper are very good.

There is a great awakening or desire on the part of the laity to get knowledge pertaining to health, especially concerning eugenics. The Federation of Women's Clubs is taking an advanced stand in this direction and we should assist them in every way and improve every opportunity to make use of their assistance in disseminating this knowledge. All we need to do is to indicate to them that we are willing to help them, and I am sure they will give us something to do. (Applause.)

CONSTIPATION AS A CAUSE OF GASTRO-INTESTINAL DISTURBANCE IN CHILDREN*

By H. M. Freeburg, M. D.

WATERTOWN, S. D.

Gastro-intestinal disturbances in children under five years of age, cause as many deaths as all the other ills to which they are subject, including the contagious diseases.

During the summer season of the year, a large proportion of our patients are babies and young children, and the location of their trouble is most commonly the stomach and bowels. Bowel trouble is an exceedingly common expression these days with the profession, as well as with the laity.

My experience in handling the inflammatory intestinal diseases of infancy has led me to other conclusions as to causes and the treatment of these cases than those usually found in textbooks and technical discussions of the subject.

Probably there is no class of cases in which location and environment have a greater bearing and influence than in the gastro-intestinal diseases.

I believe a classification of the bowel infections based on the etiological causes and pathological findings, is more logical and helpful than the more common phraseology of the subject on a basis of symptomatology.

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*Read at the 31st annual meeting of the South Dakota State Medical Association at Mitchell, May 22 and 23, 1912.

Such phrases as "cholera infantum," "summer diarrhea," "convulsions," "gastric fever," "indigestion," "dysentery," and the more general term "bowel trouble," give very little specific information as to the real ailment.

Were you ever asked the question, "Doc, what's good for colic?" What was your answer?

More than one-half of the children that die before they are five years old, die of some form of bowel infection.

The problem that presents itself is, What can we do more than we are doing to prevent this mortality?

Taking cold and cutting teeth used to be enumerated among the important causes of ailmentary disturbances. If this were true, we ought to have as much intestinal trouble in cold, as we have in warm, weather. We know this is not the case, for we have more bowel troubles in the two or three months of summer than in all the rest of the year. Especially is this true in our northern climate.

Now, we are inclined to believe that the kind and condition of the food, together wtih the frequency of feeding, are more important causative factors.

It is easy to keep all varieties of food from fermentation and decay when the thermometer stands at zero, but when the temperature is 90° in the shade for days and weeks at a time, conditions are favorable to bacterial growth. In this season it is difficult to keep food wholesome, even with ice and modern conveniences. This is especially applicable to milk, which is the natural and generally considered the best food we have for infants under normal conditions. When we consider that milk is about the best culture medium, and warmth is all that is required for the multiplication and growth of pathological germs, the surprise is that there is no more sickness. No doubt we should all be dead if it were not for the fact that the chemical and mechanical process of digestion protects us from intestinal infection almost as effectually as the unbroken skin prevents germ invasion.

We often hear the statement that the digestion of children and old people is very easily disturbed. There is no doubt but that the condition of the teeth and gums has much to do with the intestinal disturbances at these periods of life, and that the irritation and soreness about the teeth and gums interfere materially with the normal secretions and excretions of the ailmentary canal and thus indirectly cause indigestion.

This condition is much more apt to obtain if the general health of the child is impaired or if the quantity and quality of food be not suitable to the age and digestive ability of the child. Statistics plainly show that there is no food, or combination of foods, as suitable to the growth and development of the baby, during the first year of life, as mother's milk. Holt reports out of 1,934 fatal cases of gastro-intestinal disease, only 3 per cent were breast fed exclusively. Infants up to the time they have a full set of molars, cannot properly masticate hard food, yet how often they are allowed to eat apples, pickles, cucumbers, carrots, peanuts, popcorn, and the like.

The stomach is a wonderful organ, and it is a wonder that it performs its functions as well as it does when we consider what goes into it and what is expected of it. The normal alimentary tract, intestines as well as stomach, is constituted to eject from the body and system any ordinary food remnants or foreign substances which cannot be utilized for nourishment. It is also the rule for the stomach and bowels to rid themselves of all substances irritating and poisonous to the body. If for any reason the food does not digest, it is sure to ferment and putrify, thus forming a substance irritating and poisonous, which usually acts as a stimulus to the vomiting centers, and the child "throws up" that which otherwise might cause sickness and death.

There is more truth than poetry in the saying, "What the child vomits will not hurt him." If for any reason a part or all of the undigested stomach-contents passes the pyloric opening, again its irritating and poisonous nature should cause increased peristaltic action of the intestines, and this, together with the increased secretion from the glands of their mucous lining, should cause prompt evacuation of the bowels.

Now, I am ready for my subject proper, "Constipation in Children," or the relation that constipation bears to the ailmentary disturbances.

I do not care to take up any other than its relation to acute and chronic indigestion. In my experience, this condition has a vital relation in the majority of cases. The more practical experience I get in the treatment of these cases, the more I am convinced that it is the retention of the undigested foods and infectious materials that causes the mortality in these intestinal cases.

Some children are so constituted that they are by nature costive and have a sluggish bowel-action. Others acquire this condition because of carelessness and neglect on the part of the parents in their care of them. Especially is this true in the selection and preparation of their food.

Bottle-fed babies are much more prone to constipation. Then there are many babies that are having *frequent* and *soft* stools when, at the same time, they are actually in a constipated condition. I am satisfied that this is not an infrequent condition and have proved it many times in the following way:

Take an infant that is brought to you for treatment of diarrhea which has existed for several days or weeks. For illustration, I will take a milk-fed baby, and, if it has had any treatment at all, it has been given some one of the sedative diarrhea mixtures. We find the temperature ranging between 100° and 103°; pulse, 120 or more; respirations are increased; the child is inclined to be sleepy; the abdomen is more or less distended; and we find tenderness on palpitation. On further examination, we note that the stool has caused a marked dermatitis about the anus. The type of this inflammation is very similar to a dermatitis set up by an irritating chemical substance like ammonia. In many cases the cuticle is eroded and the helpless baby is suffering greatly from this alone. The stool is slimy, contains mucus, undigested milk-curds, and food particles. The stool may or may not be green, depending upon the particular germ growth that predominates.

When this poisonous mass, which has come in contact with the outer skin for a comparatively short period of time, has caused so much inflammation, is it not natural to suppose that its previous confinement in the intestines, for perhaps days, has caused as definite a pathology?

Food taken under normal conditions of digestion, should pass the bowels and be expelled from the body in from 12 to 24 hours. When a *real* diarrhea exists, it will require a much shorter time. With these conditions existing and from the above group of symptoms, I make a diagnosis of constipation or fecal retention, and it is now up to me to prove it, and I will do this in the following way:

I take away all food from the baby; give him only water to drink; place a competent nurse in charge, one who knows how to give colon flushes; order these flushes at intervals of two hours; and give daily from one to two grains of calomel to be followed by one-half ounce of castor oil. With this treatment I usually still find curds in the stools for about three days.

I will leave it to you to guess how long it would take the undigested food to clear itself at the rectum with the previously existing conditions without the calomel, castor oil and the gallons of normal saline used to flush the bowel.

Was the baby constipated, and have I overestimated the condition?

It is because of these etiological factors that I believe we ought to get away from the older symptomatic classification and adopt such terms as will convey some definite knowledge of the existing conditions.

The degree and intensity of the inflammation set up within the intestine depends upon several factors, and thus it is true that there are no two cases alike, nor can they be best treated without recognition of this fact.

And so I hold that the severity of the infection depends largely upon the degree of the constipation, and the treatment must vary accordingly.

I stated, in the beginning of my paper, that I did not wish to consider other causes than indigestion in their relation to summer bowel disturbances, neither can I, for lack of time, take up the seqelæ and complications which result from the chronic cases of indigestion, but allow me to suggest that "an ounce of prevention is worth a pound of cure"; and, in conclusion, I shall give, in a general way, my ideas on the treatment of cases of acute and chronic indigestion in babies.

Judging from my experience, the cases with sluggish bowel-action, are the hardest ones we have to treat and they have also the largest mortality. However, barring accidental complications, I believe that almost one hundred per cent of indigestion cases ought to get well under favorable conditions and logical treatment. Almost every case that we find in a dangerous condition, is dangerous, so far as life or death are concerned, only as long as is necessary to rid the bowel of its poisonous contents. The poisons of retained decomposed food in the intestines, especially in the colon, cause a decided systemic reaction, the most important symptoms of which are high fever, tympanites, stupor, very rapid, or Cheyne-Stokes breathing and even convulsions.

Vomiting is not a serious symptom, *per se,* but indirectly it is, for it interferes with medication.

I can hardly realize a grave condition existing when the stomach alone is involved, since there is little absorption from the stomach, and it can easily empty itself by backward peristalsis.

When called to a case with the above symptoms, it is safe to conclude that some of the poisonous food mass has reached the lower bowel; and the nerve centers which regulate peristalsis have become too much affected to perform their function. The sick child may not be considered dangerous by the parents for they will say, "He is resting easier and does not cry as much as he did." The parents are ignorant of the gravity of the symptoms, and it remains with the doctor to *do* something and do it quickly or he may have a death certificate to fill out.

Where the stomach is involved, there is danger of the cathartic not being retained, and therefore we must select a cathartic which is not irritating, and we must administer it in such a manner as not to upset the stomach. I generally use calomel and give it in candy form and without water. Here is a case in which I do not believe in giving calomel in divided doses. A two-grain dose will not irritate the stomach any more than a one-tenth grain tablet, and salivation is not to be taken into consideration in this initial dose, for, unless enough peristaltic action is stirred up to thoroughly empty the bowel, you are too late to save the child.

After an hour or two from the time of giving the calomel, I order a large dose of castor oil; and in the giving of this, some attention must be given to its administration. I think I get better results from giving castor oil or laxol, which is a proprietary preparation of the same, with about one-fourth of its volume of equal parts aromatic syrup of rhubarb and port wine.

Immediately after the child has been given the oil, I have it laid down flat on its back and kept as quiet as possible to prevent vomiting. If the child is very sick, and I am in doubt as to whether the cathartic is going to do its work in time to save the child, I use a colon-tube, which I always carry in my visiting-bag, and proceed to give hot colon flushes until I succeed in starting up intestinal action; and not until I succeed in this, do I consider it safe to leave the child. I have very little faith in the usual fever mixtures in these cases, except as they have a soothing effect on the minds of the anxious parents.

The hot colon-flushes have a beneficial effect in two ways. They not only are the best means we have of starting up peristalsis, but they start also the perspiration and thus help reduce the temperature. In very obstinate cases, I get better results from the use of a modified Noble's enema. The formula is Epsom salts, eight ounces; glycerine, eight ounces; turpentine, one drachm, and water to two quarts. I give this at a temperature of about 110° Fahrenheit. I have succeeded in stirring up bowel action when I considered the child in a dying condition and when all peristalsis had ceased. Of course, we get the above conditions only in cases of *acute* indigestion, for, unless relief is afforded, the child is dead in a few hours.

There is no doubt about the part constipation plays in the type of cases above mentioned.

After we have gotten good and sufficient results from the cathartics and enemas, I consider the patient out of danger, providing directions shall be subsequently carried out, which are about as follows:

No nourishment other than toast-water or a good quality of beef broth is to be given until the temperature is normal or nearly so. About a grain of calomel, now given in divided doses, and followed by a tablespoonful of the castor oil compound, is to be given every day at first, and, later on, on alternate days until the stools are quite normal.

If the mucous lining has become so inflamed that a longer time than a few days is required for normal digestion to be re-established, I like to add a measured amount of well-browned toast to the broth, or some form of beef juice to the toast water. This nourishment should always be given at regular, but not too frequent, intervals.

As these chronic cases get better, and there is less mucus expelled from the bowels, I gradually increase the number of days between the giving of the castor oil and commence using such laxatives as cascara and phenolphthalein.

A good laxative to use following these bowel infections, is equal parts of aromatic cascara and glycerine.

The chronic cases of indigestion often become greatly emaciated, and there is a tendency to relapses similar to those experienced in typhoid fever. However, if the treatment outlined above is carried out, the patients generally get well.

In closing, allow me to state that I realize this paper is a little out of the ordinary, and I request a free discussion of its contents.

DISCUSSION

Dr. C. E. McCauley (Aberdeen): I do not know that I have a great deal to say on this subject, except to endorse what has already been said. I do want to say that, while most of us appreciate the seriousness of gastro-intestinal complications in children, there are not many of us who practice up to our knowledge of the situation. Stop and think a moment. A man comes in and wants to know what the trouble is with his child, and you find that they have been giving the child a lot of tar preparations. The children die of the complications, die with their bellies full of tar. I think if we could make it a rule not to give a sedative to children at all until the bowels were cleaned out it would be much better. Dr. Freeburg said to take two or three days. I believe these intestinal complications kill more children than lung complications. It is a hard thing to get away from people who want to give food. Some one comes around and recommends this, that, and the other; and they try it, and the child goes to sleep, and they think he is all right until the undertaker comes.

Dr. F. W. Minty (Rapid City): In following our surgical enthusiasm I think we are apt to slight a paper like the one we have been listening to; and yet there is no subject of more practical interest to the general practitioner. If we want to have patients to operate on later we must save the children, and we are very apt to slight gastro-intestinal disturbances in children. We do not put it on the same scientific basis that we do other cases.

I believe medicinal treatment is the smallest part of the treatment of these cases. If we regulate the food properly the cases will take care of themselves. We do not give sufficient attention to the feeding of children. We take something that is intended for an adult and give it to the baby, and we expect a baby to thrive and do well without any further consideration. Now, just a suggestion along that line. We know that a large part of the gastro-intestinal tract of a cow is taken up by the stomach. A cow's milk is intended to absorb slowly in a calf's stomach. Mare's milk is the opposite of this. The colt has a large intestinal tract, and the milk does not curdle. Mother's milk is a happy medium between the two. If we use cow's milk we must take that into consideration. I think we have a practical field for investigation when we are getting so much alfalfa in the milk. Two years ago we had considerable experience in gastro-intestinal troubles. We had between one hundred and two hundred cases of acute enterocolitis, and in spite of all we could do we could not get any good results in these cases. One day I was out in a little shack and I noticed a glass of milk on the window, and at the bottom was a sediment of some whitish stuff, and on top there was a sort of greenish color. I asked the mother where she got that glass, and she said the milk came from their cow, and she showed me the cow. The cow was then eating alfalfa hay from the stack. I immediately had an inspiration, and I went over town and ordered that all the children that had been given milk from cows fed on alfalfa should not be given any more, but should be given modified milk from cows that had not eaten any alfalfa hay. That was done, and the epidemic cleared up within three weeks. Since then I have watched this condition because I live in a country where alfalfa hay is coming more and more into use. My advice is to take the babies off from alfalfa milk as soon as you can, and you will save yourselves lots of trouble.

Dr. F. W. Schlutz (Minneapolis): I have been very much interested in Dr. Freeburg's paper. It is a subject that interests all of us who have anything to do with children. I believe one of the fundamental things to be considered is the feeding of these children in order not to produce a constipation. In my experience we see this condition wherever we find babies that are over-fed on cow's milk. I do think that we are too apt to still follow some of the old-fashioned ideas laid down by some teachers who advocate short intervals of feeding for babies. These children are fed on cow's milk largely, a form of food which is given frequently without any regard to the deleterious effect it may have on the child, and certainly without regard that it is different from breast milk. Even when it has undergone modification so that its formula approaches breast milk, it still does not seem to solve the problem. The stools of children over-fed on cow's milk are made up largely of fatty soaps. Those babies are over-fed on fat. This is one of the fundamental things Czerny found. It was found that adopting the long intervals of feeding resulted in the disappearance of such disturbances in more than half of the cases. It is essential that we empty the bowel.. Dr. Freeburg inclines to the use of calomel. I am not very favorably impressed with the use of calomel. If you empty the bowels promptly and thoroughly with some laxative,—my preference is castor oil in large doses,—I believe you will get the desired results.

I was glad that Dr. Freeburg advocated breast-feeding. When it is estimated that only thirty per cent of mothers nurse their babies, it seems necessary to call attention to the value of breast-feeding.

Dr. H. M. Freeburg (Essayist): I feel very grateful for the discussion that my paper has called out.

Alfalfa for feeding cows is coming into use so rapidly that we must take it into consideration as an important factor in infant-feeding.

In regard to the use of calomel: I would like to cite one instance where I used it without results, because I think many of you are doing the same thing. I went to a case one day where the temperature was high, and the child had had convulsions; I gave calomel to be followed with castor oil and went back to my office. After my departure the baby vomited both calomel and oil and before I got back the next day the child was dead. If the calomel had staid in the stomach, and the castor oil had been given a long enough time afterwards, so as not to interfere with its action, I believe it would have saved that child.

In many cases we are not careful enough in our diagnosis. If we were more thorough we should sometimes arrive at a different diagnosis, and we should not make so many mistakes in these cases. I believe that a great many cases of acute indigestion with constipation are not diagnosed. Usually those cases die quickly if the bowel be not promptly relieved of its poisonous contents.

INTESTINAL STASIS WITH SPECIAL REFERENCE TO LANE'S SHORT-CIRCUITING OPERATION*

By Robert Earl, M. D.

ST. PAUL

As usually understood, the word *toxin* is used to describe the soluble poison produced by bacteria.

The term *toxemia* or *intoxication* is used to refer to conditions where some poison, known or unknown, is locked up in the body and has insufficient chance to escape. Even such toxemia or intoxication as uremia or chloremia presupposes a similar retention of such bodies. Although we do not fully understand the condition known as *auto-intoxication,* the diversity of clinical conditions impresses us with the knowledge that the poisons generated in the intestine or excreted by it play no little part in the etiology of disease.

Intestinal stagnation from any cause increases intestinal putrefaction and multiplication of bacteria, together with an increased production and absorption of poisonous toxins. These toxins produce tissue-changes which manifest themselves differently, producing a different chain of symptoms in each individual.

Auto-intoxication is often a causative factor in the production of arteriosclerosis with its many consequences. Many cases of interstitial nephritis, cirrhosis of the liver, and chronic interstitial pancreatitis may also be charged to the same cause.

The nervous system is most frequently involved, causing melancholia, neurasthenia, neuritis, migraine, neuralgia, etc. The blood suffers markedly as is evidenced by the anemias of lesser and graver types. Joint involvement, especially chronic arthritis deformans, is often accompanied by intestinal intoxication. Because of their lowering the vitality, tuberculosis and other diseases may more readily develop.

In constipation of long standing it is possible for no symptoms to develop. On the other hand, in intestinal obstruction of but a few hours' duration pronounced symptoms of poisoning appear. The present consideration does not refer to either of these extremes, but to a chronic, slow intestinal intoxication.

If the mucous membrane of the bowel is intact, it protects the system against the absorption of toxins to a very great extent. When the mucous membrane is eroded or ulcerated the absorption of toxins is greatly facilitated.

Before deciding that the intestinal tract is the cause of the intoxication, all other focal points of infection, such as the tonsils, sinuses of the head, gall-bladder, urinary tract, fallopian tubes, etc., must be excluded.

Patients suffering from intestinal stagnation present a fairly constant set of symptoms, such as abdominal pain with tenderness to pressure. The location of the pain is a fairly reliable guide to the point of obstruction. Traction on the overloaded cecum frequently produces pain in the region of the stomach, appendix, and the right kidney. Obstinate constipation, headache, dizziness, and attacks of nausea, sometimes followed by vomiting, loss of appetite, loss of weight, cold hands and feet, attacks of abdominal distention, foul taste in the mouth, general muscular pains, and depression, are the symptoms which are present in varying degrees.

Physical examination will reveal a sallow or brownish staining of the skin, most marked under the eyes, in the axilla, groins, or any region where pressure is made by the clothing. The breasts often show a condition of chronic mastitis or cystic degeneration. An excess of indican and phenols are present in the urine in varying amounts. The differential blood-count, in which we find increased proportion of lymphocytes, especially the large mononuclear and the very deep staining of some of the polymorphonuclear cells, is supposed to be of diagnostic value.

In addition to the deleterious effects of the excessive amounts of toxins produced, intestinal stagnation favors the dissemination of intestinal bacteria through the circulatory system and by contiguity. In this connection the colon bacillus is probably the most important, as it may cause peritonitis, gall-bladder disease, gangrenous appendicitis, acute pancreatitis, cystitis, leucorrhea, etc. The colon bacillus is often found in acute and recurring kidney infections. Lately I have been able to demonstrate that the majority of these patients have chronic intestinal stasis.

At the operating-table I have seen acute inflammation and old inflammatory adhesions around the pylorus, duodenum, and colon for which I could find no cause. They were usually found in patients who had old adhesions and angulations of the intestine in the lower abdomen together with a dilated cecum. Dr. Robert Morris has lately published a paper on this condition, in which he states that he has found colon bacilli present in these inflammatory adhesions. I have now no doubt that the inflammatory conditions I have seen were due to the colon bacillus.

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*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

I cannot help being deeply impressed with the far-reaching possibilities of harm caused by the over-production of colon bacilli and the greater danger of their dissemination because of intestinal stagnation.

The *x*-rays, with the aid of a bismuth meal, show the cecum to be greatly dilated and often occupying the true pelvis, together with the transverse colon. The motility of each division of the gastro-intestinal tract can be definitely established by the bismuth Roentgen-ray test. The stomach should empty itself of 500 c.c. of bismuth gruel in two and one-half to four hours. This meal should reach the cecum in from one to four hours. The large intestine should completely empty itself in from twenty-four to forty-eight hours. If more than the maximum time is required for the bismuth meal to pass any division, it is positive evidence that there is chronic delay in the passage of the intestinal contents through that portion of the gastro-intestinal tract.

Normally, the intestinal tract should be free from obstructive angulations and of such caliber as to permit free drainage. All curves and angles should be of such a nature as to offer little obstruction to the passage of the intestinal contents.

Angulations, contractions, kinks, and dilatation of the colon are usually insidious in their onset, covering periods of months and years. They are due to a variety of causes among which may be mentioned certain congenital anatomical conditions, the erect position of man, great loss of fat, and tight lacing. These lead to visceroptosis with resulting obstruction from the formation of angles or kinks. In acute diseases we sometimes have an acute dilatation of the stomach. Why can we not also have acute dilatation of the colon from the same cause? During infancy and childhood the colon is often over-loaded and over-distended from improper feeding. Undoubtedly, this condition, as well as attacks of enterocolitis, is an etiological factor.

Mr. Lane has described certain contractions of hypertrophic tissue which are developed because of the irritation due to the pull of the over-distended and over-loaded cecum, causing the formation of "the Lane kink." To the traction of the transverse colon he attributes the sharp angulation with the formation and contraction of new connective tissue at the hepatic and splenic flexures. When the descending limb of the transverse colon comes into contact with the ascending colon and cecum, adhesions form, uniting them directly to one another. The same formation exists on the left side where the ascending limb of the transverse colon comes into contact with the descending colon.

The loops of the sigmoid are often similarly adherent to each other or to any part of the colon, small intestine, pelvic organs, bladder or abdominal wall, causing acute angulations and strictures with more or less obstruction.

Stasis may sometimes be caused by interference with innervation and peristaltic action.

The treatment of all forms of intestinal stasis should at first be palliative and consist of laxatives, diet, enemas, massage, exercise, drinking large quantities of water, etc. In cases of visceroptosis, the rest-cure with forced feeding gives the best results. Some patients derive benefit from a well-fitted abdominal binder or lifting-corset. Liquid petrolatum, internally, in doses of one-half ounce at bedtime, together with one-half ounce of olive oil after each meal, is of benefit to some. Agar-agar, alone or together with liquid petrolatum, has relieved some of my cases.

If hemorrhoids, fissure, fistulæ, or painful coccyx are present, they should be treated surgically.

We have an interesting and promising form of treatment of intestinal stasis in the "peristaltic hormone." This physiological stimulant is supposed to restore the normal physiological movements to the gastro-intestinal tract. Though this treatment promises much in some forms of constipation, it cannot be of great value when the constipation is due to mechanical interference, as angulations, kinks, or membranes. Most of the patients who are suffering from symptoms of intestinal intoxication have, in addition to medical treatment, been subjected to various operative procedures, as appendectomy, kidney fixation, gall-bladder drainage, pelvic operations, etc., without relief from the symptoms complained of. If these patients cannot be relieved and made comfortable after thorough and persistent attempts with non-surgical treatment, they become surgical.

After the usual preparations these patients should be opened near the median line. Thorough examination should be made for kinks, membranes, angulations, adhesions, or any obstructions which might interfere with the movements of the intestinal contents.

The best operative procedure will be determined in each case according to the findings. If it is found that a "Lane kink" is the only obstruction, we should be happy, for this condition can be easily relieved. Should the obstruction consist of an obstructive angulation at the hepatic flexure, the condition can be best relieved by a lateral anastomosis between the ascending colon and the descending limb of the transverse colon. An obstructive angulation at the splenic flexure can likewise be relieved by a lateral anastomosis between the ascending limb of the transverse colon and the descending colon. I had one patient in whom I found an obstructive angulation at the splenic flexure with adhesions between the ascending limb of the transverse colon and the descending colon, together with a sharp angulation of the first part of the sigmoid, also firm adhesions uniting the sigmoid to the transverse colon. In this case I made a lateral anastomosis between the transverse colon and the sigmoid with very satisfactory results. If membranes are found, they can usually be divided and the raw surfaces covered by normal peritoneum. When any of the above operative procedures are not feasible, ileosigmoidostomy is indicated.

The ileum should not be divided too close to the cecum as the blood-supply is not good in the last two or three inches of the ileum. I have severed the ileum about six inches from the ileocecal valve, invaginating both cut ends and making lateral anastomosis of the proximal end of the ileum to the lowest part of the sigmoid. Mr. Lane sutures the end of the ileum into the lateral wall of the sigmoid, making end-to-side anastomosis, thus doing away with the blind end of the ileum, in which he says fecal matter may accumulate and cause pain. In two cases I passed a stomach-tube into the anus through the anastomosis opening and twelve inches up the ileum, fixing it to the perineum by a suture, retaining it in position for three or four days, as suggested by Mr. Lane. The advantage of the tube consists in facilitating the escape of gas and preventing the point of anastomosis from dropping into the pelvis and becoming adherent in some unfavorable position, with the possibility of the formation of a new kink.

The edges of the fold of the mesentery of the ileum and the sigmoid should be sutured together, thus preventing the intestine from herniating itself through this opening, with possible unpleasant results.

In two cases of ileosigmoidostomy I did not remove any part of the colon. These two patients have thin abdominal walls. Beginning about three weeks after the operation and continuing up to the present time, a period of about one year, I have been able to palpate large masses of feces in the cecum and the ascending and transverse colon. These two patients pass very soft feces mixed with hard fecal masses. The hard feces, no doubt, come from the colon, and the soft part of the stool goes directly from the ileum into the rectum. One of these patients has been greatly improved from his symptoms of auto-intoxication, but is not fully recovered. The other patient was greatly improved during the first month after the operation, but as the colon became filled with fecal masses, the symptoms returned. One of these patients has consented to an operation for the removal of the colon this fall, and I hope to operate on the other also, expecting in this way to secure complete recoveries.

These two cases help to prove, as do animal experimentations, the *x*-ray findings, and rectal enemas discharging through fistulæ of the cecum, that there are antiperistaltic waves in the colon, causing a reversed current, which sometimes permits stagnation in the colon with auto-intoxication after ileosigmoidostomy. My third case made a very satisfactory recovery from her symptoms of auto-intoxication without the removal of the colon. As this patient has a very large abdomen, I cannot palpate her colon to determine whether or not it is empty.

In my other two cases I removed the colon as far as the splenic flexure. The results of these two patients were in every way ideal.

In the cases where I removed the colon at the time of the making of the ileosigmoidostomy there was not much shock, and the operative recovery was fully as smooth as when only ileosigmoidostomy was done.

When the colon is greatly dilated, is ulcerated, or has caused much pain, this should be sufficient reason for its removal.

From my limited experience of five cases of ileosigmoidostomy I am of the opinion that the colon should be removed at least to the splenic flexure in all cases in which ileosigmoidostomy is indicated, provided the patient's condition permits the extra operative procedure.

All of the patents were relieved of their obstinate constipation.

No patient was operated on because of constipation, but for the relief of definite symptoms of severe auto-intoxication, which refused to yield to other treatment.

The stools were diarrheal and rather frequent the first two to four weeks only, after which the stools have been soft and satisfactory except the two cases in which the colon contains the fecal masses. In these cases the stools are soft with hard lumps.

No one complained of an excessive thirst.

Considering the fact that most patients who are subjected to short-circuiting operations, are physical wrecks enduring a miserable existence, the results are good.

I advise ileosigmoidostomy with colectomy only after non-surgical treatment has failed and when a less formidable operation does not promise relief.

DISCUSSION

Dr. T. W. Stumm (St. Paul): I would take issue with a part of the paper just read. I think we are very apt to attach too much importance to auto-intoxication from the intestinal tract. There are doubtless cases in which we do have intestinal auto-intoxication, but I am of the opinion these cases are extremely rare, and are cases in which some definite pathological process is back of it, as probably was the case in some of the patients Dr. Earl has mentioned. For instance, where there is a true organic obstruction, this obstruction may be around either of the colonic flexures. In such cases as this it is just probable that there may be some absorption, especially in those cases where the mucous membrane has been injured in some way, so that absorption can take place, though, in my opinion, there is very little absorption of toxic products through a normal mucous membrane, as in ordinary cases of obstinate constipation, and, unless some grave pathologic condition exists in the way of broken mucosa, marked adhesions, or some severe inflammatory condition, there will be no absorption, and I can see no necessity of operating unless some, or all, of these pathologic processes are present. We do not have absorption through the normal mucous membrane, and too much importance is often attached to this.

There is another point which the essayist brought out that, according to the work done by Schmidt and Strassberger, cannot be borne out. I refer to the amount of bacteria present in cases of obstinate constipation. A large percentage of feces is composed of bacteria, epithelium, some mucus, etc., as shown by the work of Schmidt and Strassberger. A large percentage of the bacteria present are colon bacilli, and in those cases where intestinal intoxication is supposed to take place the number of bacteria is very materially reduced; and, such being the case, it is hard to assume in what way the bacteria would play a part in the absorption of toxines.

One of the best discussions on the pathologic conditions of this sort, in the intestinal tract, that I have seen, is by Dr. Arthur Dean Bevan, of Chicago. This paper was recently presented before the American Medical Association. He discusses the matter in a most logical way, according to my way of thinking, and probably in these cases reported by Dr. Earl a definite pathologic process, as pointed out by Bevan, existed, i. e., inflammatory lesions about the splenic, hepatic, or sigmoid flexure of the colon.

A part of these cases will undoubtedly be associated with the pathologic conditions existing in the region of the sigmoid (diverticulitis) and not associated with constipation at all. In these cases there are little pockets extending out from the sigmoid; there may be only a few of them, while at other times they are numerous. In these the inflammatory condition starts, and the constipation, if present, is only secondary. The trouble that may be produced has nothing whatever to do with constipation, *per se*.

Another thing that was mentioned by the essayist in his paper was the use of intestinal hormones. During the last six or eight months opinion has changed very materially about the use of this material. Recently, within the last two or three months, a number of articles have come out, especially in the German literature, condemning the product. Within the last two or three weeks only, the originator of it has written an article in its defense stating that the bad results (several deaths) were due to the imperfect preparation of the product. Undoubtedly, there have been a good many bad results, and some fatal ones, due especially to cardiac depression. I have had two patients who came near dying from the use of it. Personally, I shall not use it again.

I should say that we want to go pretty slow in using such surgical means as Dr. Earl has advocated. It is very essential to analyze our cases carefully and to be sure there is some decided pathologic condition present other than the constipation before an operation is undertaken, but, if there is some grave organic condition present, operation may be of material benefit, though I doubt if I could ever consent to advising a patient to have his entire colon removed. It would seem to me the condition can be taken care of in some other way.

Dr. Earl (closing): I wish to emphasize the point that a short-circuiting operation is never undertaken unless there are evident obstructive pathologic findings when the abdomen is opened.

THE NEW PUBLIC HEALTH—NINTH PAPER

THE PUBLIC HEALTH STATISTICIAN

By H. W. Hill, M. B., M. D., D. P. H.

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LONDON, ONTARIO, CANADA

In the development of the new public health principles, the laboratory came first. It dealt with the *causes* of disease at first hand, as well as with their *sources* and their *routes* of transmission. On laboratory findings all modern public health is based, although in practice the laboratory is necessarily limited, for daily service, to those diseases the causes of which are known.

But in its earlier work, the laboratory, inheriting somewhat the environmental teachings of the older school, paid more attention to *routes* than it did to *sources,* especially to the routes constituted by (a) water and (b) general surroundings. This focused attention on (a) sanitary engineering and (b) disinfection. It was in the earlier laboratory period that the sanitary engineer and the disinfector developed highly. It is true that the engineer deals almost solely as yet with but one *route,* water; and that therefore his efforts necessarily relate almost solely to the intestinal infections, mainly to typhoid fever. Nevertheless, so valuable were his services in reducing this disease, that engineering work was hailed at one time as the solution of all public health questions. Now the epidemiologist leads the van, because he deals not with *some routes,* nor with a few diseases, but with *all sources* of *all* infectious diseases.

But, through the work of the laboratory man, the engineer and the epidemiologist has for long been heard a still, small voice, offering a framework to bind them all together—to give coherence, correlation, and proportion—to outline the future, as well as to record the past, and, above all, to direct the present. This was the voice of the vital statistician. Much abused, laughed at, neglected, he is, or will be, guide, map-maker, intelligence-department, all in one; he is, or will be, like the cost-of-production scientific manager of modern business, "the most indispensable man on the staff."

True, his professional ancestors were helpless old gentlemen, raising their feeble voices in very feeble chants. A dry-as-dust historian of the wars of ancient Greece could lend more aid to a modern football team than the old-time statistician furnished to public health endeavors. Even now the new vital statistician is scarcely yet full-born. Hardly a health department now in existence collects in full or uses to full advantage one-tenth the information that it really needs. (A notable exception should be recorded here, the Richmond (Va.) Health Department under E. C. Levy.) The laboratory man has made some good statistics in his own field; so has the sanitary engineer—sometimes, alas, not wisely, but too well; the epidemiologist, also, from sheer necessity: but the new vital statistician has only begun to move. When he does move, fully equipped, alert, he will systematize, organize, and *use* the rich data so far largely wasted, this very life-blood of public health endeavor, accurate, complete information concerning the way humanity reacts to human ills. Internal public health organization has been like the old-time factory, full of good workmen, but each working only his own line, with no one person knowing much about the business as a whole. At the end of the year the business, drifting along, perhaps showed a doubtful profit, perhaps a loss, but so long as bills and wages were somehow paid, who cared? Public health requires exactly the kind of man who has changed the face of business in the last fifteen years, a man who understands all parts of it, but does none himself; a man who knows costs in each department in proportion to production, and where to cut cost, increase production, save time, unnecessary work, and waste in general; alas, in health departments, a man to stop the one-half, now done wholly uselessly in the wrong direction and to force development of the other half, now much neglected or left undone completely.

It is the vital statistician who must do this: collect the facts and set them forth inexorably, with mathematical precision. When it is done, our health departments will no longer use up $30,000 for garbage, with the probability that not a single life will be saved thereby, while spending $12,000 on *all other* health department efforts combined. Nor will a health department spend for terminal disinfection one-tenth its annual appropriation, to save no lives at all,* while using but one-fiftieth its appropriation for tuberculosis, which kills five times as many people as all the diseases usually "disinfected" put together.

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*In tuberculosis, where terminal disinfection would be valuable, it is not often done.

It will be said: "You are confusing vital statistics with health department finance; vital statistics deal with deaths, not money." Exactly—and that is just exactly what is wrong with them. Vital statistics are, in short, not *vital;* they deal with Death, not Life, with the "finished product" only of our slack, slipshod methods. They ought to deal, not with the dead, but who they were, and why and how they died, and why they were not saved. Suppose the factory manager merely knew at the end of the year his total product! Suppose that even this piece of information related, not to the way business went last year, but to the way it went *five years before.* "Historical records, and mighty poor at that," a modern public health man said in bitter scorn of the statistics of a neighboring state. The modern scientific manager must know not just the total product, though he must know that, and to the minute, not to five years before; he must know also all about the product, the kind, the quality, the cost, and why it is not better for the price. The modern vital statistician must know not only deaths, but why the health department is not stopping them; what its funds are; how they are spent or wasted; what work is being done; how much of value each division does; and all to the one end of saving life, not to the end of stopping nuisances, removing garbage, or cleaning streets—all admirable ends but not life-saving ends.

But, it will be said, "Very well, but you are wrong in stating that Vital Statistics deal with Deaths. They deal with more than Deaths—they deal with Births and Marriages and contagious diseases also." Yes, nominally; but to what useful end?*

"Birth records quite often affect inheritance of estates in later years." True, and very useful to the inheritor they are when the time comes, but what has that got to do with *saving life* now? Marriage records also are invaluable in their own way, but they do not reduce tuberculosis one-tenth of a tenth per cent. Contagious disease reports, then? Surely they are important? Yes, but not as they are now collected. Misleading information is sometimes worse than none at all.

The best way to show what public health vital statistics as they are today mean, or do not mean, is to give the story, true to life, as anyone who knows will quickly see, of the very basis of such statistics, the actual facts as they occur amongst the people.

Mrs. Anybody says to Mr. Ditto: "I am afraid Tommy has scarlet fever; I think he must have caught it when he was in the city." "Call Dr. A." "Yes, but they say he will report it, if it is scarlet fever. I'm nearly wild now with work. When the children are at school all day I manage somehow; with you and the children quarantined at home for a month I should go insane. I'll call Dr. B.; they say he never reports anything. I'll tell the neighbors it is scarlet rash. That's not a lie. It's a rash, and it certainly is scarlet. I'll let the children go to school, but I'll keep every one away from Tommy. I'd hate to think any other child got it from our children, but I guess that will be all right. Tommy is not very sick yet. Don't go telling anyone he is sick. I'll tell the children not to, either. We don't want to have the milkman or the grocer afraid to call."

So Mrs. Anybody plans, and so it is carried out. But her heart is bigger than her head, and her plans go strangely awry.

She puts Tommy in a room by himself and runs over to a neighbor's for an egg or a cup of flour. When she comes back the other children are lined up in Tommy's room, solemnly inspecting the rash he proudly demonstrates to them. Next morning Tommy is "real sick," and after breakfast the mother puts up the other children's lunches alternately with running to Tommy's room to give him water or to hold the basin while he vomits or just to kiss and soothe him.

Poor, loving, hard-working mother! She has done the same through all the ages, taking infected discharges from the sick child, on her hands to put in the other children's food! No, she won't kiss them goodbye; she has been kissing Tommy; that is, she won't kiss any but the smallest one, who looks nearest to crying. That one's mouth she wipes with her apron before she kisses it—*she does not wipe her own!* Not that wiping either matters, for Tommy's mouth discharges are already in the lunch the little one marches out with, under its arm.

About 10 A. M., the empty house and the wailing child get on the mother's nerves. So she calls in a neighbor. "Tommy's sick. I want to go to the store to telephone the doctor. It's only scarlet rash. I won't be gone more than a minute, but I'm afraid he'll get out of bed or something. Will you keep an eye on him?"

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*Birth records, if they led to immediate investigation to see that the child was cared for properly, would be true public health data.

The neighbor comes in, the baby on her arm, for is it not scarlet rash? But prudence strikes her suddenly, and she sets the baby on the floor before she peeks in at Tommy. "Hullo!" "Hullo, Mrs. Neighbor!" a feeble little voice replies. She steps in further, leaving the door open to keep an eye on baby. "Well, Tommy, how do you feel?" "Not very well," and he begins to vomit. She snatches a basin, holds his head, and in a moment surrenders him to his mother, and then takes her baby hurriedly home. A speck of vomit-spray has hit her hand. She did not notice it. The baby's fingers rest on it a moment, before it is dry; a minute later the baby sucks that finger. At home she sets the baby down and, conscience-smitten, changes her dress and feels all right again because *now* she can't give it to any one, even if it is scarlet fever; besides, the doctor said it was scarlet rash.

Meantime, Mr. Anybody, summoned by his wife, hurries home in terror, finds Tommy still quite alive, growls, fusses, brings in some wood, pumps a little water, and then steps into Tommy's room, "just inside the door for a minute," before going down-town again. Tommy, with feverish, flushed face and heavy eyes under his tousled hair, calls feebly, "My daddy, my daddy"; and, of course, Mr. Anybody steps to his bedside to pat his head and kiss him, before hurrying back to business.

That night Tommy is worse; sorrow is on the family in earnest. Next morning Tommy is much better; the prayers and tears of the night before are forgotten; the mother, weary but joyful, lets the other children in to see him; "just for a minute now, but, anyway, he is so much better"; and they all race out to school, shouting and laughing.

About five days late, Susan, the youngest, is not feeling very well towards evening, vomits during the night, is delirious next morning, with sore throat, swollen neck, and rash; and Dr. B. comes again. Serious measures are taken. The other children, in tears, are spirited away to a cousin's house to stay because the mother can't stand the strain of nursing the sick and caring for the well also.

Tommy has had it mildly, and by this time is up and about, wandering disconsolately through the empty house. To all inquirers the mother bravely maintains that Susan has only the scarlet rash and tells them Tommy will go back to school in a day or two. "I just sent the other children away because they were so noisy," she explains guiltily, wishing very earnestly that it was really so.

Next day Susan is *better*. (I am writing this —and therefore I make it thus. In practice, poor little Susan often dies, instead.) Everyone is cheerful again. Tommy is sent, very unobtrusively, to school because "he mopes at home, without a soul to play with." He is beginning to peel, and, in a day or two, is in much demand amongst his schoolmates, presenting them with souvenirs of flakes of skin they treasure as curiosities. Not that these scales do harm, despite the old beliefs. It is not the peeling, which everybody sees, that does the mischief, but the unnoticed slightly red sore throat that Tommy carries with him, and from which he infects his hands (and everyone he touches) and shoots out infection in his mouth-spray as he chants his lesson, or whispers across the aisle, or sings in class.

And so the old, old story works itself out inexorably. One of the other children, staying at the cousin's, develops a slight sore throat. Were there an epidemiologist at hand, posted on the history of the child, to scan the enlarged papillæ of the tongue, note the large glands, and see the filmy membrane on the tonsils, the case would be recognized as scarlet fever, *sine eruptione,* i.e., without a rash. But as it is "it's only a sore throat." No physician sees her, because the cousin argues thus: "If it were my child, I'd have in Dr. A., but Mrs. Anybody wouldn't thank me for running up another bill here, unless the child is really ill; she's having Dr. B. now for Susan, twice a day. I'll wait a day or two, anyway."

The sore throat mends, and the cousin feels she made a good judgment. But meantime the sore-throat girl has been sleeping with the cousin's little girl, and she develops it, too, but it also passes off. Then a week later, the cousin's little girl's school-chum, in a different school from Tommy's, has scarlet fever proper. Dr. A. attends, and reports it. The Health Department puts a placard up; the children are kept out of school; the father is kept at home; the whole population turns its eyes to that family and speculates where they got it. The village wiseacres, over the village bar, remind each other of the slough behind the house, or that the garbage from the family was never removed all summer. They say the well is shallow, "nothing but surface water," or the house is damp, or too much shut-in by trees, or any other fatuous foolishness that enters their empty heads. The mayor gives out a statement to "allay popular excitement." He brands as malicious all statements that scarlet fever is rampant. There is but one "sporadic case," originating no one knows how. It is carefully quarantined, and "the Health Department believes the outbreak is well in hand and practically stamped out." The Women's Club demands the fumigation of the schools; and the epidemiologist, if he were only present, would gaze reflectively at Tommy's slight red throat, and gnash his teeth, and swear.* Poor Dr. A., who only did his duty, is blamed for all the trouble; and Dr. B. keeps mum. When, presently, Dr. C. is called to one of Tommy's schoolmates, he hesitates. He has not seen much scarlet fever, and he thinks, perhaps it *is* scarlet rash—whatever that may be. He attends the child two or three days, and then he begins to ponder whether or not he had not best put the responsibility on the Board of Health; so at last he calls up Dr. D., the Health Officer. But Dr. D. has troubles of his own. "Do you say it is scarlet fever?" "Well, I don't know. I want you to go and see." The H. O. is perplexed. He does not want the reputation of finding a second case, after the Mayor has stated that there is only one; so he tells Dr. C.: "If you report it, I'll placard the house, but I don't want you to report it, if you are not sure." At this Dr. C. waits a day or two more, but finally reports it. Meantime a week of association of the other children with the sick one has elapsed, because Dr. C. did not *quite* know the finer points in recognizing mild scarlet fever early.

By this time, between the unconscious activities of Tommy and Susan, who are back at school, well oiled by Dr. B.'s advice, to keep the scales from showing, and of Susan's sister and the cousin's little girl (none of them recognized officially as scarlet fever), some twenty or thirty children in the two schools have been infected. Some of the pupils have had scarlet fever before and so escape this time. In others the disease is mild and passes unnoticed. In others "scarlet rash" develops. But several develop frank scarlet fever, not to be denied even by Dr. B., who, to give him credit, has begun "to get a little scared," and so reports one or two well-marked cases to relieve his conscience. Two or three deaths occur, and then the schools are closed, but not the Sunday-schools, or churches, or private sociables, or moving pictures, and so it drifts.

Now, see how all this affects vital statistics. The Health Department, in its annual statement, gives as the first case that school chum of the cousin's little girl. But we know that there were four cases before that—Tommy and Susan, and Susan's little sister, and the cousin's little girl—but these do not go down upon the books at all. The Health Department adds thirteen more cases; that is, all those cases attended by Dr. A., faithful, conscientious man; about half of Dr. B's cases, those he had after he "got scared"; and some of Dr. C's, but only those he was absolutely certain of, not knowing scarlet fever very well. Dr. D. had no cases, because being health officer, the mothers felt that he would *have* to report them, and so did not call him.

The fact is, that any epidemiologist would find that there were forty cases, but the books show fourteen.

Then consider the deaths. Two are reported properly as due to scarlet fever. But one of Dr. B's, really scarlet fever, not quarantined while ill, is reported "acute Bright's disease," because the doctor dare not say it died of scarlet fever after treating it a month without reporting it. It is quite true the child had Bright's disease, but it had Bright's disease because it had scarlet fever. Another dies of meningitis, due to middle-ear infection, the result of scarlet fever, but being meningitis, this death also goes in a different column. The more or less spoiled ears and the more or less spoiled kidneys of twenty other children who recovered never are recorded on the books at all.

Hence, fourteen cases where there should be forty; and two deaths, where there were really four, are recorded officially as scarlet fever.

This instance exemplifies practically the whole situation, mild, unrecognized, and concealed cases; cases to which physicians are not called at all, mistaken diagnoses; a superficial report covering a few of the severer cases only; death reports correct so far as they go, but not showing the relation of the death to the preceding disease. This occurs, not occasionally in a few communities, with scarlet fever only, but, almost every time, in almost every community, with almost every one of the infectious diseases.

The returns from Anybodyville are small in

***Editor's Note.**—We regret the epidemiologist should do this, but we propose to give the facts, no matter whom it hits. Besides, we do not blame him much under the circumstances.

number, it is true; but multiply these by all the similar communities which make similar returns. Anybodyville reports two deaths and fourteen cases from scarlet fever, where there were four deaths and forty cases. This is "only" two deaths and twenty-six cases wrong. But if one thousand communities report similarly, our statistics are wrong two thousand deaths and twenty-six thousand cases.

Moreover, see how the percentages are twisted and tangled. Two deaths from fourteen cases is about 14 per cent. Two deaths from forty cases is 5 per cent. Four deaths from fourteen cases is 28 per cent. Four deaths from forty cases is 10 per cent. When we remember that the number of cases of scarlet fever, and of other diseases, is often calculated from the deaths by the percentage which the deaths *usually* are of the cases, we find that we can calculate the cases from one hundred deaths of scarlet fever (on the above returns) as seven hundred, two thousand, three hundred and fifty, or one thousand—how *very* valuable!

SUMMARY

The vital statistician of the future will be the scientific manager of a business department, for, through the epidemiologist working in the field, he will know where the diseases *are*, not where they *were*, and he will know which disease demands the most attention. He will know also what resources, in men and money, the health department has, to fight its battles with. The correlation of these two factors has seldom been achieved, rarely even attempted, in public health circles, although in life insurance it has long been known that their inter-relations were the absolute *sine qua non* of success. Any business man's first step in reorganizing public health for actual service would necessarily be (a) to determine what requires to be done; (b) to determine what there is to do it with. The maximum *required* returns from the minimum *necessary* expenditure should be the only motto. To secure this information, no one but a statistician knowing statistics, but knowing men and things as well as figures, can succeed. To confine his work to deaths, even to cases, from preventable diseases, is to study output only, with no regard to income. To study income, as is so widely done, without regard to whether that income is spent to achieve lessening of disease and death or merely for nuisances or smoke inspection, is simple madness.

PROGRESS IN MEDICINE

Abstracts of medical reprints and articles on file in the library of the Department of Medicine, College of Medicine and Surgery, University of Minnesota.

UNDER THE CHARGE OF

DR. CHAS. LYMAN GREENE

Professor of Medicine and Chief of the Medical Clinic

These abstracts are read and discussed at the departmental meetings held monthly at the University Hospital.

THE VICIOUS CIRCLE AS A CAUSE OF SUDDEN DEATH

By Jamieson B. Hurry, M. A., M. D.

The Practitioner, June, 1912

Hurry states that the aim of this paper is to draw attention to the mechanism of sudden death and to indicate the correlations that bring about the fatal issue. For convenience he makes the three classifications:

1. Death associated with the nervous system.
2. Death associated with the vascular system.
3. Death associated with the respiratory system.

1. Deaths associated with the nervous system: Cerebral hemorrhage: Normally, the blood-pressure in the cerebral arteries is higher than the intracranial pressure, the latter being about equal to venous pressure. Cerebral hemorrhage raises intracranial pressure to a level with blood-pressure and so compresses the blood to the vasomotor centers as to render them anemic. These, of necessity, respond by a tremendous splanchnic vasomotor constriction, which may raise blood-pressure to 300 or even 400 m.m. of mercury. The situation thus produced tends to produce fresh hemorrhages and their associated disturbances until death supervenes from the pressure of the blood on the vagal or respiratory center.

Inhibition or paralysis of the vasomotor centers may be caused by terror or other strong emotion and lead to sudden death. During emotion that paralyzes the vasomotor mechanism, the usual compensatory vasoconstriction fails. The splanchnic sluice-gates are opened, blood-pressure falls, the cerebral vessels are emptied, and, as a result, the depression of the centers may be accentuated and beyond the point of recovery. The heart, too, may be involved in the circle. On account of the accumulation of blood in the splanchnic area, an insufficient quantity returns to the myocardium, with the result that the heart may suddenly stop in diastole. This is probably the mechanism of death in various forms of shock, in the collapse of acute diseases, and in perforation of abdominal viscera. A very similar mechanism sometimes causes sudden death during the administration of chloroform by stimulating the vagal center and thus inhibiting the cardiac beat but also diminishing the automatic action of the heart and thereby aggravating the vagal inhibition.

Convulsions, especially in children, frequently cause sudden death, both by general convulsion and by the local form, such as the respiratory glottic spasm of laryngismus stridulus. Imperfect depuration of the blood takes place, one convulsion predisposing to another, thus forming a circle. Again, it is stated by Jackson that when first there is set up a spasm of any part of the respiratory apparatus the "venosity" becomes greater, and thus with each succeeding convulsion the "venosity" of the blood is increased. Supervenosity itself initiates the spasm which increases it, and the same statement applies to adults, both in the status epilepticus and in general paralysis.

Sudden death in hydrocephalus not infrequently occurs when the fluid has accumulated in the ventricles as a result of a vicious circle. The dilated ventricles may then so displace the adjacent parts as to press on and increase the obstruction to which the accumulation of fluid was primarily due; e. g., the cerebellum and medulla may be pressed down into the foramen magnum so as to plug that aperture, and in turn raise the pressure to such a point that the respiratory center is paralyzed. and sudden death occurs.

II. Death associated with the vascular system: Syncope due to heart failure ranks as one of the most common causes of sudden death, e. g., in the diseased heart acute dilatation consequent on overexertion may weaken the coronary circulation so greatly that the blood that reaches the myocardium is insufficient to maintain the continued activity of the muscle. The cardiac muscle is fed by the blood which it circulates and the feebler the systole the less blood is supplied to myocardium, and *vice versa*.

Arterial sclerosis producing coronary obstruction is a condition causing the sudden demise of many elderly people. The cardiac ischemia so impairs the coronary circulation that the end is sudden death.

Death from angina pectoris is often due to this circle. the pain being caused by a spasm or cramp of the cardiac muscle, which cannot obtain adequate blood supply, and, as a rule, this follows some unusual muscular effort or a heavy meal.

Among valvular diseases of the heart, stenosis and insufficiency of the aortic orifice, associated with ventricular dilatation, most frequently cause sudden death. The fatal circle may be summarized as follows: regurgitation, dilatation, weakened systole, impaired coronary circulation, and increased regurgitation.

Sudden death is frequently due to thrombosis or to embolism of the heart or large vessels. If not immediately fatal, the embolus or thrombus may cause eddies and obstruction to the circulation, which, in their turn, lead to rapid and extensive clotting.

Congenital "morbus cordis" is not an uncommon cause of sudden death. Sometimes it is due to the vicious circle of the open foramen ovale associated with pulmonary stenosis, and in these cases sudden death usually follows some violent exertion.

Spontaneous rupture of the heart is usually associated with degenerative changes and dilatation of the cardiac muscle. The greater the dilatation the greater the degenerative change, and when rupture occurs the primary loss of blood stimulates the vasomotor center, which calls for a general vasoconstriction, raising the blood-pressure and thus intensifying the hemorrhage.

III. Asphyxia due to the interruption of respiration is a frequent cause of sudden death, and the mechanism of the circle involved in producing the fatal issue is frequently complicated. Take, for example, the pressure upon the trachea of an enlarged thyroid. Nature, in response to a demand for more oxygen following any exertion, calls into play the supplementary respiratory muscles. But these muscles, as they contract, press upon the enlarged thyroid, and thus Nature's effort ends in a self-strangulation, and again the venosity of the blood is progressively increased, and the right auricle and ventricle lose contractile power.

Death in infancy from asphyxia is occasionally associated with thymic enlargement, whether as an independent affection or a part of a general status lymphaticus, and in infancy even a moderate enlargement of the thymus may lead to bronchial stenosis and suffocation.

Another vicious circle is due to congestion of the aryteno-epiglottidean folds, which may be sucked together like valves during inspiration and provoke acute dyspnea.

Another deadly vortex occurs in connection with paralysis of the abductors of the vocal cords, which may lead to acute dyspnea, atelectasis, or pulmonary collapse, and frequently causes sudden death in weakly or rachitic children. Thus a trifling catarrh may be sufficient to set up a fatal collapse.

Acute bronchitis is sometimes rapidly fatal through the operation of a circle. The bronchitis impeding the circulation through the lungs leads to defective aëration of the blood. To overcome this, the right ventricle beats more violently, but, compensation becoming strained, the right ventricle dilates and leads to tricuspid insufficiency. As a result of the cardiac failure the pulmonary circulation and aëration are further impeded, and a fatal result follows.

The same reciprocal embarrassment of lungs and heart may occur in pneumonia, and even hemoptysis may be complicated by a vicious circle for the intrapulmonary irritation of the effused blood induces cough, and each act of coughing raises the blood-pressure and thus renews the hemorrhage. Hence a person may be drowned in his own blood, and, indeed, even mental excitement without any cough may do the same.

In conclusion, Hurry says the main duty of the skilled physician or surgeon is to break the vicious circle if possible by interfering at the proper moment, to attempt to check the morbid processes that tend to establish dangerous correlations. JOHN E. HYNES.

GASTRIC DISTENTION (PNEUMATOSIS) AND DYSPNEA

By Prof. Dr. J. Pal

VIENNA

Medizinische Klinik, 1911, No. 50

This condition is also known in its severe form as *asthma dyspepticum*. The symptoms are produced by distention of the stomach and consequent elevation of the diaphragm, and they occur most frequently in connection with arteriosclerosis and angina pectoris.

The gas present in the stomach is partly produced from the food, but consists principally of air swallowed with the food. The patients complain of dyspnea and palpitation rather than of gastric tension. Belching of gas gives relief or terminates the symptoms.

In patients with heart disease the attack may be severe, as in cardiac asthma. but belching or vomiting at once relieves it unless extensive circulatory disturbances take place. An attack may end fatally by pulmonary edema or cardiac paralysis in severe myocardial disease, especially when due to coronary sclerosis. In some cases attacks occur daily, usually after the heavy meal. The symptoms are aggravated by exertion.

Physical examination shows the stomach distended and the left side of the diaphragm raised. The action of the diaphragm and heart are mechanically interfered with.

The attack may be mistaken for one of simple angina, but it differs in the preponderance of dyspnea. Usually the diagnosis can be correctly made.

These patients usually chew their food insufficiently and swallow hastily, and much air enters the stomach with the food, but it is probable that air is also aspirated during digestion. The gas rises to the highest part of the fundus and so does not readily escape.

Treatment.—As congestion of the liver and distention of the intestines aid in producing this condition, these conditions should be properly treated. Patients should eat slowly, carefully chewing small quantities. Liquids should be taken slowly. In some cases a wedge between the teeth for from one-half to one hour after meals prevents the entrance of air into the stomach. During an attack the patient should lie on the left side, or at least incline strongly to the left. This brings the air out of the fundus and permits its escape. Alkalies, by hastening the emptying of the stomach, are also valuable. J. S. Gilfillan.

BACTERIOLOGY AND PATHOLOGY OF THE TONSILS WITH ESPECIAL REFERENCE TO CHRONIC, ARTICULAR, RENAL AND CARDIAC LESIONS

By David J. Davis, M. D.
CHICAGO

Journ. Infect. Diseases, Vol. X. No. 2, March, 1912

(See also "Bacteriology and Exper. Observ. on Focal Infections," *Archives of Internal Med.,* Vol. 9, p. 505, April, 1912, and "Relation of Varieties of Streptococci," *Journ. of the A. M. A.,* Vol. LVII, p. 1283, April 27, 1912, by the same author.)

Davis again directs attention to the causal relationship so frequently existing between acute and chronic tonsillar infections and diseases of the joints, kidneys, and heart.

He has demonstrated the fallacy of determining tonsillar flora by the swab method and has sought the organisms in the depths of the tonsillar crypts.

He reports upon 113 cases of tonsillar disease requiring extirpation, and he divides these into arthritic, renal, and cardiac groups plus those of simple tonsillar hypertrophy.

The arthritic group covered 28 cases of joint-pain or severe chronic involvement, some of these giving a history of repeated attacks of acute arthritis.

In this group the hemolytic streptococci predominated in 25 of the 28 cases and were present in all. In many they occurred in pure culture.

Young rabbits were inoculated with these streptococci from 17 cases, and all but two strains caused arthritis, associated in one instance with a tricuspid endocarditis.

Renal cases.—In ten cases of nephritis, chiefly chronic, some mild, others very severe, the hemolytic streptococcus predominated in 9 and young rabbits developed arthritis after inoculation with the recovered organisms.

Cardiac cases.—In 10 cases of endocarditis, nearly all of which were at the time suffering from arthritis, hemolytic streptococci were abundant, and predominant in six. In the remaining cases there were large numbers of pneumococci, and in two the cultures were pure pneumococcus. These pneumococci, when injected into rabbits, produced vegitative endocarditis, but no arthritis.

Cases of tonsillar hypertrophy.—Of 61 cases of recurrent tonsillitis, 50 yielded the hemolytic streptococcus as the predominant organism, occurring for the most part in pure culture.

Pneumococci were predominant in 2 cases, associated in each instance with streptococci.

In 6 cases the staphylococcus albus predominated, in 3 the influenza bacillus, together with a few hemolytic streptococci, and in 1 and streptococcus mucosus was the dominant organism. Diphtheria bacilli, in nearly pure culture, were obtained from the crypts of two cases and from one the bacillus mucosus capsulatus.

One culture of the diphtheria bacillus was highly pathogenic, the other not.

Seven strains of streptococci obtained from the cases of chronic tonsillar hypertrophy produced arthritis in every instance. Four strains of pneumonococci proved negative on inoculation.

In four animals in the Davis series a non-fatal arthritis, due to the hemolytic streptococcus, assumed the form of a chronic atrophic arthritis (arthritis deformans).

As in the Poynton and Payne cases, it would appear that the organisms first localized in the subserous structures of the affected joints.

No less than 43 streptococcus strains were recovered and investigated in this series.

Davis believes that the pneumococcus-like organism found in the tonsillar crypts of 4 of the 10 cases of endocarditis is identical with the organism investigated by Rosenow in experimental endocarditis and the streptococcus viridans of Schottmüller (strep. mucosus of Gordon).

This organism is a common inhabitant of the buccal mucosa, but may enter the crypts, increase its virulence, enter the circulation, and localize on the heart-valves.

Davis refers to the astonishing therapeutic results of complete tonsillar extirpation in arthritis, and emphasizes the significance of the almost constant finding of the hemolytic streptococcus in the diseased tonsils.

COMMENT

It now remains to be seen whether the remarkable work of Davis and Rosenow can be reconciled with that of Poynton and Payne, who report the almost constant recovery of a virulent diplostreptococcus from the subserous areolar tissue of the affected joints in acute rheumatism.

Inasmuch as their organism can, by no specific test, be differentiated from the hemolytic streptococcus and occurs only preferentially and predominatingly in diplococcus grouping, it would seem that we are very near to a solution of the etiology of acute rheumatism and possibly also of chronic arthritis of the toxic and the deforming types.

If any doubt has hitherto existed in the mind of any medical man as to the dangers lurking in diseased tonsils, it would seem that the recent reports of Davis and other workers should remove it.

C. L. Greene.

UEBER HORMONAL WIRKUNG (Reprint No. 1)

By R. Mohr

Berliner klin. Wochensch., No. 26, 1912

UNTERSUCHUNGEN UEBER DIE WIRKUNG DES HORMONALS (Reprint No. II)

By Rudolf Dittler und Richard Mohr

LEIPZIG

Zeitschrift f. klinische Medizin, 75 bd., H. 3, u. 4

Dittler and Mohr have published the results of carefully conducted experiments bearing upon the truth or falsity of the conclusions of Zuelzer, Dohrn, and Marxer relative to the existence of a specific peristaltic hormone. In 1908 the latter observers reported their success in obtaining readily from the gastric mucous membrane of rabbits at the height of the digestive process an extract which, when introduced intravenously or intramuscularly into a living animal, produced decided peristaltic activity. Furthermore, the peristaltic action thus produced was not a tetanic contraction, such as may be caused by physostigmin, but, rather, an increased peristalsis of the normal type.

Zuelzer and his colleagues found that the same substance might be extracted from the spleen, which seemed always to contain large quantities, and to the extract so derived the name *hormonal* has been given.

Used in the treatment of chronic constipation in the human being, it has obtained considerable vogue on the Continent, and somewhat extravagant claims of a prolonged influence extending over months or years have excited the suspicion in some minds that its action was due more to suggestion than to the medicament.

In one case reported by Zuelzer, the remedial effect of one intramuscular injection was said to have lasted almost two years, and he reported that after intravenous use auscultation would reveal an increased peristalsis within ten or fifteen minutes.

Many favorable, and only a few unfavorable, reports are on record, but evidence is now rapidly accumulating which goes far to disprove the contention of hormonal advocates, both as to its efficiency and its safety.

After a most painstaking effort to determine the effect of hormonal upon the circulation, the coagulability of the blood, the secretory apparatus, and the peristaltic activity, Dittler and Mohr reach the following conclusions as to the effect produced by its intravenous use:

(a) A decided lowering of the blood-pressure occurs associated with more or less cardiac and respiratory disturbance, according to the size of the dose employed.

(b) Diminished coagulability of the blood.

(c) Increased activity of the salivary glands.

(d) An entire absence of increased peristalsis referable to any specific *hormone*. In only four of eighteen experiments was any increase in peristalsis observed, and in these four the investigators believe that the effect was attributable to the marked lowering of blood-pressure.

They ascribe the relief following the use of hormonal to suggestion, and wholly discredit its claims as a specific therapeutic substance.

Mohr vigorously and keenly analyzes and dissects the favorable report of Kausch based upon one apparent good result in a supposedly complete post-operative ileus after a succession of failures covering a large number of cases in which hormonal was employed.

He also points ou the dangers associated with the use of this substance, as illustrated by recent reports and by the striking fall in blood-pressure and marked diminution of blood-coagulability demonstrated by his experiments.

Sabatowski's report in the *Wiener klin. Wochenschr.*, No. 3, 1912, fully accords with that of Dittler and Mohr, and he still more strikingly demonstrates the dangers and apparent futility attending the use of hormonal.

DuBois and many others have gone far to prove that the great majority of cases of so-called constipation require only suggestion re-enforced by a few simple instructions for their complete and permanent relief.

C. L. Greene.

THE IMPORTANCE OF REMEMBERING THAT ALL PULMONARY PHYSICAL SIGNS ARE NOT THOSE OF TUBERCULOSIS

By H. A. Hare, M. D.

PHILADELPHIA

Medical Record, April 27, 1912

Hare states that the general tendency among medical men is to think that all physical signs in the lungs are tuberculosis, and he would not deny the fact that many are tuberculous. He reports a series of cases, which, at the onset might have been looked upon as tuberculous, but proved otherwise.

Case 1.—Girl of 18. Cough for six weeks; loss of weight of 8 pounds; evening temperature, 100°. This all followed a sharp attack of influenza six weeks previously. Examination showed at the right apex impairment of resonance, prolonged expiration, and slight tubular breathing.

Diagnosis: Impairment of normal lung function due to infiltration or congestion of apex as a result of influenzal infection with partial starvation. She was sent to the mountains for three months and gained fifteen pounds, and has ever since remained in perfect health.

Case 2.—Man, 49 years of age, cough for three months from pertussis, no whoop, had lost twenty pounds in weight. Examination revealed prolonged expiration, blowing breathing, and high-pitched resonance on percussion.

Diagnosis: Localized emphysema of lungs. He has since become perfectly well, but the physical signs persist.

Case 3.—A physician engaged in sanitarium work, giving history of loss of weight, slight fever, malaise, some anemia, loss of appetite, and impaired digestion.

Examination: At base of right upper lobe posteriorly he had dullness on percussion and bronchial breathing; tonsils enlarged and follicles filled with foul secretion; slight cervical adenitis. Tonsils were removed, and he was told that he had tuberculosis. He then volunteered the information that some years ago he had a pleuropneumonia of great severity on the right side. With the clearing up of his tonsillar infection and proper general treatment he speedily recovered his health, but the chest signs persisted. The diagnosis was then changed to tonsillar infection and an old lesion resulting from pleuropneumonia.

Case 4.—Man, 21 years of age, lost fifteen pounds in three months, rise of temperature in evening, and profuse mucopurulent expectoration. At one apex there was slight impairment of resonance and some râles. On both sides of the vertebræ there were many râles and whistling or tubular breathing at several points.

Diagnosis: First, "tuberculosis," but later changed to pneumococcic infection of the bronchial mucosa with possibly bronchiectasis. The use of expectorants, outdoor life and good food cleared the lesion up and showed a gain of weight of fifteen pounds in three weeks, with no evening temperature. No tubercle bacilli were found in the sputum, but multitudes of pneumococci were found. No history of antecedent pneumonia.

Case 5.—Woman, 21 years of age. Following a tonsillitis had infection of the cervical lymph nodes. She developed six weeks later moderate fever lasting several weeks, shows marked loss of flesh, constant cough, loss of appetite and weight. Complained of a sense of discomfort at the third interspace near the sternum, which was increased by coughing.

Examination at this point revealed distinct blowing breathing and dullness on percussion. Right apex showed impairment on expansion. Sputum was negative except for a few pus organisms.

The diagnosis was tuberculosis, but was revised when, after a severe coughing spell, the patient expectorated a teaspoonful of pure pus containing no tubercle bacilli. Recovery speedily followed. The final diagnosis was infection and suppuration of a bronchial lymph-node rupturing into a bronchus.

Case 6.—Woman, 30 years of age, athletic and strongly built, lost strength, health, and appetite, and had an incessant cough.

Examination showed on the right side of the sternum for two inches vertically distinct impairment of resonance from the second to the fourth interspaces with tubular breathing. *X*-ray revealed a chain of enlarged bronchial lymph glands on both sides. She was treated with rest and iodide of iron, and sent South for the winter with the result that she made a perfect recovery.

Case 7.—Young man, 21 years of age, student, complained of pain in stomach, loss of flesh, cough and loss of vigor, became pallid and suffered from dyspnea on exertion.

Examination showed tubular breathing at right apex, impairment of resonance, and a few râles.

A diagnosis of tuberculosis was made, the more readily as he had an evening temperature of 101.5°. A consultation at this time was asked for, and the consultant made a diagnosis of epidemic influenza. An eminent clinician afterward saw him and made a diagnosis of scrofulosis, probably because the cervical lymph-nodes were enlarged.

Blood examination was negative, and the spleen was not materially enlarged. The disease ran a rapid course, and toward the end the diagnosis was plain and was confirmed by autopsy.

The case was one of Hodgkin's disease with lesions chiefly in the bronchial lymph-nodes.

Case 8.—Woman, 28 years of age, caught a severe cold which lasted several weeks, with persistent cough.

Examination showed impairment of expansion in right apex, prolonged expiration, and a few râles. The diagnosis of probable tubercular infection was made, but rapid recovery followed in two weeks, and the discovery of a history of pneumonia in 1908 resulted in a diagnosis of acute cold with physical signs due to an old catarrhal pneumonia.

The diagnostic significance of dullness, and the absence of vesicular breathing at the base of the lungs in severe bronchitis, in whooping cough, or following operations in the upper abdominal segment, is usually thought to be consolidation of pneumonia, but Hare states that the real condition is atelectasis. He also takes occasion to remark that the bronchial lymph-nodes are very often diseased in other conditions than tuberculosis, viz., leukemia, pigmentation from inhaled coal dust, severe bronchitis, pneumonia, bronchiectasis, and the acute infectious fevers of childhood. But, as Hare states, many of these conditions predispose to a tubercular infection.

The main point that the author makes in this paper is that one should not tell a person that he has tuberculosis until one is absolutely sure, inasmuch as many of the signs of tuberculosis cited above may be caused by many other conditions, and if a person is told that he has tuberculosis it handicaps him in business and leads to untold misery for the patient and his family. His chances for getting life insurance are stopped, and even his marriage may be prevented by the blot on the history of his lungs.

The parallel between syphilis and tuberculosis is exact in this aspect. Each is so common that we are very liable to select the more common, or, as an elderly physician once said to the reviewer, "What's the use of making a Sunday diagnosis when an every-day diagnosis would do just as well and is so much easier?"

John E. Hynes.

THE IMPORTANCE OF PELVIC DEPOSITS IN THE DIAGNOSIS OF ABDOMINAL CANCER

By G. Grey Turner, M. S. F. R. C. S.
NEWCASTLE-UPON-TYNE

British Medical Journal, Feb. 3, 1912

Turner's paper emphasizes the great importance of the pelvic and rectal examinations in abdominal ailments.

It is a well-proven fact that in a certain proportion of carcinoma cases where the upper abdomen is involved, palpable nodules, or areas of infiltration, may be evident in the rectovesical pouch or about the anterior wall of the bowel, usually two or three inches from the anus.

They may be single or multiple, are usually symptomless, and are frequently demonstrable long before any palpable tumor is discoverable through the usual abdominal examination.

Turner dwells upon the value of such findings, not only as an aid to positive diagnosis, but also as constituting early and positive evidence of the inoperable nature of the primary lesion.

C. L. Greene.

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COMPLETE YOUR FILES

While our supply of extra copies lasts, we are glad to furnish, without charge, back numbers to our subscribers who desire to complete their files of the past year.

Our readers are urged to attend to this matter at once.

VERY IMPORTANT NOTICE TO THE PHYSICIANS OF MINNESOTA

The fiscal year of the Minnesota State Medical Association and of all county societies in the state, now runs with the calendar year, and therefore membership in all societies expires at the end of this month (December).

The penalties for failure to pay one's dues are heavy, being as follows:

1. Loss of the medical defense feature of the Association.
2. Omission of one's name from the Roster of the State Association, soon to be published.
3. Loss of The Journal-Lancet.

OPPONENTS OF SCHOOL-INSPECTION

The opposition to the inspection of pupils in schools is not limited to those who oppose all advances made by medical and educational endeavors to improve general hygiene and sanitation. Much opposition comes from those of new religious beliefs and from those who are classed as antivaccinationists and their kind. The other opponents are found among medical men. This class is made up of the unthinking, the superficial, and the careless, as well as those who, in their ignorance, believe they can see through the human form without the necessary examination that reveals the true condition of the individual. Some of the medical inspectors who work conscientiously and who take pains, time, and labor to arrive at a diagnosis, are met with a rebuff from a reckless doctor who puffs himself into an imposing posture and with a gesture of indifference, supposed by himself to denote authority and wisdom, tells the parent that the suggestions and recommendations of the school-inspector are wholly unnecessary.

One such instance in which a child was found to be a mouth-breather, due to adenoids and diseased tonsils, was sent to the City Hospital for relief. At the last moment one of the intermeddling medical men sent in an alarm to the father of the child, and the operation was called off.

There are frequent examples of this kind wherever school-inspection is undertaken, and it is difficult to understand how any reasonably well-qualified doctor can block an effort to help a retarded school child. It is only fair to say that the medical man's opposition comes from those who are hasty and careless and who think they will secure the homage of the family by such an act. In one school, for instance, in two grades and in four rooms, the inspector found 144 children who needed attention for their teeth. Notwithstanding the fact that dentists had volunteered their services, the parents were slow or unwilling to take advantage of these opportunities for free treatment.

In other schools pupils suffering from chorea and even mental disorders are permitted to sit with children presumably healthy. The teachers and the principal are unable to deal with the situation as they should for fear of bringing more trouble and complaints upon themselves. The only proper method in such cases is to send these choreiform and insane children home for treatment and care, yet the teachers hesitate and no one has sufficient authority or courage to do what is really right for the sick child and his comrades. It will take a good deal of time and patience to overcome the ignorance of family and friends. In the meantime the education of the retarded child is expensive and not infrequently wasted.

The education of the public goes on equally slowly and never will reach near a state of perfection until reasonable authority is granted to inspectors and educationalists.

THE CARPING CRITIC

We all deserve more or less criticism, provided it comes from those who are qualified from experience, sound reasoning, and good judgment. Deliver us, however, from the man who thinks he knows it all, but who is so narrow-minded that he needs special lenses to widen his field of vision; and deliver us particularly from the holier-than-thou critic who sees the beam in his brother's eye, and yet cannot see the big stick in his own eye.

Criticism is really good for one when it is kindly and scientifically administered, but when it is fired broadside without qualification, or when it is applied to numbers rather than individuals, it ceases to be criticism, and either becomes amusing or it fires one to further exploits over the danger-line. No one ever improved under abuse that was thought to be criticism, and many a physician owes his professional and social downfall to his carping speech full of venom and unkindness toward others.

It is an unpleasant truth that physicians are known to criticise one another in the presence of others. People laugh about it and carry the criticism from family to family until the first spoken words become so deformed and unrecognizable that the critic can truthfully deny ever uttering the original sentiment. The fact remains, however, that physicians constitute themselves critics of one another to such a degree that the profession is held up to ridicule by laymen. One doctor may criticise his fellow as much as he pleases—to his face,—but never behind his back, for that is unmanly. Give the other man the pleasure of "knocking" back if he chooses to do so, but have it out and over. Too often we misjudge our fellow man. We do not always know his reasons; nor do we appreciate that he may be as sincere in his way as we are in ours.

The man who makes a business of slandering his colleague usually feels the boomerang when it comes back to his own neck. The man who would condemn one-third of his fellow practitioners to a cell in the penitentiary simply because they do not live as he does, is an unthinking ass. He may be right in some of his caustic comments, but he is wrong when he gets on a pedestal and attempts to excoriate all others. Some men are sour temperamentally, and some achieve acidity, and it makes them more unpleasant to co-operate with.

Wholesale and indiscriminate criticism accomplishes nothing, and if the critic thinks he can reform his professional brother this way he will find himself in the lonely minority. Usually the sledge-hammer method of correcting abuses arouses the other man to strive to see how bad he can be and not be detected. Even if detected, he does not love his critic or his kind. The only way to bring about harmony and righteousness is to help a fallen man up and cheerfully guide him into better ways. Who is the critic?

SEX PROBLEMS AMONG CHILDREN

A letter written by a girl in one of the schools in Minneapolis recently came into the editor's hands, and it shows a deplorable condition existing among ignorant and depraved children. The letter is too outspoken to publish, but shows the necessity of guarding children most carefully. The writer details her experience with a boy, also a pupil in the school, in whom sex perversion has reached a low level.

It is astounding that a boy should know of the vilest methods of sex gratification, and yet this youngster has started his sex-life in a manner wholly abnormal and quite in line with the roué who finds it necessary to stimulate his mind with the most debased forms of excitement, and in all probability this lad is a degenerate, and as such should be cared for and prevented from perverting others.

How this problem is to be reached is debatable. There are many exponents who think children should be taught early in life to guard and conserve their functions; at least they should be warned and trained in the belief that the organs of the male and female are destined for better things than abuse and vileness. Others believe that sex problems should be left until the child is old enough to inquire about them.

Both of the above positions are right, but each should be given preference under certain conditions. Children that are brought up in a good home where parents really look after and protect their children, need little or no instruction until they are able to understand it. Even among the better classes, some children go astray, sometimes from neglect or carelessness on the part of the parents and not infrequently from the inherent immoral tendencies of the child.

On the other hand, among the ignorant and poorer classes, where indifference and brutality are common in the home, it is never too early to inculcate in the mind of the child that the body is to be protected and respected, and that uncleanliness, untidiness, and bad habits make poor men and women.

When the child grasps the fact that disease and filth are things not to be desired, and that to grow up clean and pure, is an asset for the futrue, there will be less of these horrible beastial habits.

There are too many boys and girls who know as much, and often more, about sexual diversions than do many adults.

There are altogether too many veneral diseases among school-children now, and too many pregnancies among school-girls who in after-life will be stunted physically and morally.

The same cry must go out to the doctor to urge him to see that the families among which he practices shall be informed as to the danger to which their boys and girls are subjected. The doctor can do better service than the preacher or the teacher, for he can give illustrative facts that will make a lasting impression.

BOOK NOTICES

An Atlas of Analytical and Differential Diagnosis of Nervous Diseases. By Henry Hun, M. D., Albany, New York. The Southworth Company, Publishers, Troy, New York.

This monumental volume by Henry Hun, M. D., is the most elaborate of its kind published. Two hundred and ninety pages of small, clear type interspersed with blank pages and the whole of the printed matter tabulated, analyzed, and in the form of charts, are the essential features of the remarkable volume.

The crystallization of teaching in tabular form renders it possible to look up any neurological subject and get at the fundamental points in a very short time.

Cross-references to terms, etiology, pathology, and diagnosis are a feature of the body of the charts, as well as in the index. A characteristic of the book is, that it gives to the student or physician a key by which, in a comparatively easy manner, from one or more important symptoms, he can arrive at a diagnosis. Diseases are divided into groups, the members of which have a definite relationship with each other; so that, in the process of using the charts, the student is constantly catching glimpses of the natural relationship between the different diseases of the nervous system. Contrasted tables in parallel columns are presented here as in no other book published.

When the reviewer speaks of this as a monumental volume he refers only to the wealth of arrangement and the concise way in which diseases are outlined under headings. It must have required years of research, comparison, and careful analysis to tabulate this grouping of symptoms and descriptions of nervous diseases.

The book contains chapters on examinations that are invaluable, and the illustrations, of which there are a limited number, but all are original, add to the value of the compilation.

The book will be a great aid to general practitioners who need something for ready reference, and who do not possess library facilities for immediate information.

W. A. Jones.

Progressive Medicine. Vol. 14, No. 3. September, 1912. Lea & Febeger, Philadelphia.

Probably no more important addition to our medical literature is given than the review of "606" by Gottheil in this volume. Among a long list of accidents from its use, he quotes a critical study of 468 cases of intravenous injection, with 55 deaths, 25 of these attributed directly to this remedy and 7 doubtful. This report should be carefully studied by the profession.

NEWS ITEMS

Dr. G. L. Baker has moved from Pine City to Waltham.

Dr. O. I. Rafsdahl has moved from Marine Mills to Hayfield.

Dr. F. W. Burns, of Stewartville, has moved to Los Angeles, Calif.

Dr. L. B. Ohlinger has moved from State Sanatorium to Albert Lea.

Dr. Charles E. Rogers, of Montevideo, died on Dec. 3d at the age of 62.

Dr. Norman Dreisbach, of Minneapolis, has gone to Europe to be absent until June 1.

Dr. A. S. Needles, formerly of Hunters Hot Springs, Montana, has moved to Sheldon, N. D.

The Minot Graduate District Nurses' Association was organized last month at Minot, N. D.

Dr. G. C. Barton, of Minneapolis, has retired from practice and has moved to Lakeland, Florida.

Dr. C. A. Fjeldstad, of Chicago, has located in Winona and become associated with Dr. A. E. Johnson, of that city.

Two additional physicians and three additional nurses have been added to the corps of inspectors in the Minneapolis schools.

Dr. M. I. Olson, formerly of Minot, N. D., who has been studying in Europe for the past year, has located in Madison, Wis.

Dr. Richard J. Brady, of Hastings, died last month at the age of 28. He was a graduate of Jefferson Medical College, Philadelphia.

The new hospital building at Benson was thrown open to the inspection of the public last month, and a large number of people visited the building.

It is said the Minnesota State Board of Control will ask the legislature for $250,000 to enlarge the work of the State Tuberculosis Hospital at Walker.

Grand Forks, N. D., has adopted medical school-inspection, and the work will be done by a visiting nurse who will work both in the schools and in the homes.

The Harlow Hospital at St. Peter has been made the county hospital under a new Minnesota law, and the county commissioners have made an appropriation for new equipment.

Dr. William J. Kennedy, of Olga, N. D., died last month at the age of 35. Dr. Kennedy was a 1904 graduate of the University of Minnesota, and was formerly located at Enderlin, N. D.

A number of Minneapolis physicians are backing a movement to have Noyes Bros. & Cutler, of St. Paul, open a branch store in Minneapolis. The need for such a branch is felt by the physicians to be very urgent.

Dr. William K. Flatt, died in St. Paul on Dec. 5th. Dr. Flatt was a homeopathic physician, and had practiced in St. Paul and Minneapolis for thirty-six years. Of late years he lived in St. Paul and practiced in Minneapolis.

"Common Colds and How to Prevent Them" was the subject of a popular lecture given in Sioux Falls last month by Dr. J. G. Parsons, of that city, under the auspices of the Seventh District Medical Society of South Dakota.

Dr. Ohmer Warner, of Freeport, and Miss Elsie Seifert, of New Ulm, were married last month. Dr. Warner is a 1911 graduate of the State University, and has spent a year in Minneapolis City Hospital, where his bride was a student in the training-school for nurses.

A Red Wing physician, in an account, given to the press of that city, of the recent Congress of American Surgeons held in New York and attended by eminent surgeons from all parts of the world, says no other surgeon received such a tribute of applause as was given to Dr. William J. Mayo when he rose to read a paper.

The twenty-fourth annual meeting of the Southwestern Medical Society was held in Luverne on Nov. 20th, and was characterized by a fair attendance, good papers, valuable discussion, and a good time. Officers for 1913 were elected as follows: President, Dr. L. Sogge, Windom; vice-president, Dr. C. L. Sherman, Luverne; secretary and treasurer, Dr. Emil King, Fulda.

Dr. Mabel Ulrich, of Minneapolis, has just finished a course of six lectures on sex hygiene before the teachers of the Duluth schools. This course was instituted by the Board of Education of the city of Duluth to give the teachers the necessary information to deal with this subject as occasion may arise. The women of Duluth will probably arrange to have Dr. Ulrich give a similar course for the benefit of mothers.

The Southern Minnesota Medical Association held its annual meeting at Mankato on Dec. 3d. This was the first meeting of the consolidated societies, the Southern Minnesota and the Minnesota Valley. The following were elected officers for 1913: President, Dr. A. D. Stewart, Owatonna; first vice-president, Dr. A. G. Liedloff, Mankato; second vice-president, Dr. W. J. Richardson, Fairmont; secretary, Dr. W. T. Adams, Elgin; treasurer, Dr. G. F. Merrill, St. Peter. The summer meeting will be held at Owatonna.

PRACTICE FOR SALE

North Dakota practice offered; runs $9,500 a year. Successor can do as well or better. Cleared about $40,000 in last nine years. Requires $3,000 to handle this deal. Address, Dr. J. S. Davies, Granville, N. D.

PRACTICE FOR SALE

A good $2,200 cash practice in village near the Twin Cities free to purchaser of my driving outfit and a few other articles. Practice well established, unopposed, and collections over 98 per cent. Address G. A. care of this office.

SANITARIUM FOR SALE

Exceptional opportunity for bright, active physician or physicians to purchase a well-established revenue-earning sanitarium, located in a city of 45,000 and connected by a street-car line with city of 80,000 and having a large patronage from the range districts of Minnesota, Wisconsin, and Michigan. Address I. M., care of this office.

PRACTICE FOR SALE

Practice and small private hospital equipment in thriving town of 900 in northwestern Minnesota. Rich farming country. Collections 98 per cent. Good opening for surgeon. Competition light. Reason for selling, retiring. Address H. M., care of this office.

Doctor: If you want practical postgraduate work during fine season in the delightful city, write for particulars. New Orleans Polyclinic, P. O. Box 797, Postgraduate Medical Dept., Tulane University of Louisiana.

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF MINNESOTA FOR THE MONTH OF SEPTEMBER, 1912

REPORTED FROM 82 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	0															
Albert Lea	4,500	6,192	3												2	1		
Alexandria	2,681	3,001	4													2		
Anoka	3,769	3,972	5															
Austin	5,474	6,960	11	2	1									1		1		1
Barnesville	1,326	1,353	0															
Bemidji	2,183	5,099	5															1
Benson	1,525	1,677	0															
Blue Earth	2,900	2,319	2													1		1
Brainerd	7,524	8,526	8											1		1		1
Breckenridge	1,282	1,840	4															1
Canby	1,100	1,528	0															
Cannon Falls	1,239	1,385	1															
Chaska	2,165	2,050	1															1
Chatfield	1,426	1,226	1															
Cloquet	3,074	7,031	4		1											1		1
Crookston	5,359	7,559	5													1		1
Dawson	962	1,318	4													1		
Detroit	2,060	2,807	3												1			1
Duluth	52,968	78,466	69	6	1	1					2	1		1	15	7		2
East Grand Forks	2,077	2,533	2	1												1		
Ely	3,572	3,572	0															
Eveleth	2,752	7,036	9		2										2			2
Fairmont	3,440	2,958	2															
Faribault	7,868	9,001	6	1														2
Fergus Falls	6,072	6,887	13	1												2		
Glencoe	1,788	1,788	1															
Granite Falls	1,454	1,454	0															
Hastings	3,811	3,983	7												1			
Hutchinson	2,495	2,368	1															
International Falls		1,487	7												1			3
Jordan	1,270	1,151	0															
Lake City	3,142	3,142	4	1												1		
Le Sueur	1,937	1,755	1															
Little Falls	5,774	6,078	4	1														
Luverne	2,223	2,540	0															
Madison	1,336	1,811	1			1												
Mankato	10,559	10,365	14			2										2		3
Marshall	2,088	2,152	2															
Melrose	2,591	2,591	2															
Minneapolis	202,718	301,408	263	27	4	15	2	2						5	13	24	2	18
Montevideo	2,146	3,056	4		1													1
Montgomery	979	1,267	1															
Moorhead	3,730	4,840	7		1	1									2			
Morris	1,934	1,685	0															
New Prague	1,228	1,554	3															
New Ulm	5,403	5,648	7												1	1		1
Northfield	3,210	3,215	5												2	1		
Ortonville	1,247	1,774	1															
Owatonna	5,561	5,658	6	1							1			1		2		1
Pipestone	2,536	2,475	2															
Red Lake Falls	1,666	1,666	2	1														
Red Wing	7,525	9,048	10	1										1				2
Redwood Falls	1,661	1,666	0															
Renville	1,075	1,182	1															
Rochester	6,843	7,844	26		1											5		
Rushford	1,100	1,011	1															
St. Charles	1,304	1,159	0															
St. Cloud	8,663	10,600	8												3			
St. James	2,102	2,102	1															
St. Paul	163,632	214,744	198	17	5	7					4	1		4	19	17		12
St. Peter	4,302	4,176	2	1										1				
Sauk Centre	2,154	2,154	1													1		
Shakopee	2,046	2,302	4													1		2
Sleepy Eye	2,046	2,247	2															
South St. Paul	2,322	4,510	2												1			
Staples	1,504	2,558	2															
Stillwater	12,318	10,198	14	2											1	1		1
Thief River Falls	1,819	3,174	0															
Tower	1,111	1,111	0															
Tracy	1,911	1,826	0															
Two Harbors	3,278	4,990	5			1												
Virginia	2,962	10,473	4												1	1		
Wabasha	2,622	2,622	3	1												1		
Warren	1,276	1,613	3															
Waseca	3,103	3,054	2															
Waterville	1,260	1,273	1															
West St. Paul	1,830	2,660	2	1												1		
Willmar	3,409	4,135	4															
Winona	19,714	18,583	22												2			2
Winthrop	813	1,043	1	1														
Worthington	2,386	2,385	0															

REPORTED FROM 54 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian			0															
Aitkin	1,258	1,112	2															
Akeley	1,719	1.638	0															
Appleton			2			1												
Belle Plaine	1,184	1.221	0															
Biwabik	1,121	1,204	1											1				
Bovey		1,690	1												1			
Browns Valley		1,377	0															
Buffalo	721	1,058	2															
Caledonia	1,040	1,227	1	1														
Cass Lake	1,175	1,372	1															
Chisholm	546	2,011	9								1				2			
Coleraine		7,684	0															
Delano		1,613	2															
Farmington	967	1,031	1													1		
Fosston	733	1,024	*															
Frazee	864	1,055	0															
Glenwood	1,000	1.645	0															
Grand Rapids	1,116	2,161	4												1	1		
Hibbing	1,428	2,239	13	1		1					1				7			1
Jackson	2,481	8,832	0															
Janesville	1,756	1,907	1															
Kenyon	1,254	1,173	1															
Lake Crystal	1,202	1,237	0															
Litchfield	1,215	1,038	3	2														1
Long Prairie	2,280	2,333	1															
Madelia	1,385	1,250	1															
Milaca	1,272	1,273	0															
Mountain Lake	1,204	1,102	2															1
Nashwauk	959	1,081	3												3			
North Mankato		2,080	0															
North St. Paul	939	1,279	0															
Osakis	1,110	1.404	0															
Park Rapids	917	1,013	0															
Pelican Rapids	1,313	1,850	1															
Perham	1,033	1,019	4												1			
Pine City	1,182	1,376	0															
Plainview	993	1,258	1															
Preston	1,038	1,175	2												1			
Princeton	1,278	1,193	7			1									1	2		
St. Louis Park	1,319	1,555	0															
Sandstone	1,325	1,743	0															
Sauk Rapids	1,189	1,818	1															
South Stillwater	1,391	1,745	1															
Springfield	1,422	1,343	2															
Spring Valley	1,511	1,482	1															
Wadena	1,770	1,817	3															
Wells	1,520	1,820	3															
West Minneapolis	2,017	1,755	4			1									2	1		
Wheaton	2,250	3,022	2															
White Bear Lake	1,132	1.300	1	1														
Windom	1,288	1,505	*															
Winnebago City	1,944	1,749	0															
Zumbrota	1,816	2,555	0															
	1,119	1,138																
STATE INSTITUTIONS																		
Anoka, Asylum			1		1													
Faribault, School for Blind			0															
Faribault, School for Deaf			0															
Faribault, School for Feeble Minded			3	2														
Fergus Falls, Hospital for Insane			12	9		1									1	1		
Hastings, Asylum			3															
Minneapolis, Soldiers' Home			6															
Owatonna, School for Dependents			0															
Red Wing, State Training School			0															
Rochester, Hospital for Insane			5	1														
Sauk Centre, Home School for Girls			0															
St. Peter, Hospital for Insane			8	2														
St. Cloud, State Reformatory			0															
Stillwater, State Prison			2	1														
OTHER PARTS OF STATE			587	35	10	19	2				6			3	39	46	2	58
Total for state			1537	121	28	51	4	2	0	0	15	2	0	19	126	130	4	122

*No report received. Registrar not doing his duty.

120 stillbirths not included in above totals

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